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SOCIAL MEDICINE*

BY

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A professional statistician is, if a sexagenarian, a cautious prophet; but I do not risk much in prophesying that a majority of you will become general practitioners, *doctors;* that is why I have taken for my subject what we call Social Medicine and the Germans call Social Hygiene. What Prof. John Ryle (1943), now of Oxford, means by Social Medicine is precisely what the late Prof. Alfred Grotjahn (1923, 1932) of Berlin meant by Social Hygiene—viz., the effects, good and bad, on the health of human beings of their nature and nurture, *all* their nature and nurture, not some items of it. We reject the word "hygiene" because—whether logically or not—to English men and women hygiene does always suggest either the statutory duties of a medical officer of health or, on a lower plane—and, after all, we are not always on mountains—various useful objects of commerce, for some of which we have to queue: filters and other things. Grotjahn rejected the word "medicine" because in German professional circles social medicine suggested sometimes what we call professional ethics and, oftener, the technical and administrative problems of health insurance. I do not think I need enlarge upon the obvious—namely, spin sentences expounding the truism that doctors, who are trying to help human creatures, cannot succeed unless they are interested in people. That is obvious.

There is a story, so old that it may be new to some of you, of Thomas Sydenham, when asked by a pupil what books he should read, replying, "Read *Don Quixote*—it is a very good book; I read it still." Learned men have discussed what he meant by that. Dr. Johnson actually said:

> "The perverseness of mankind makes it often mischievous in men of eminence to give way to merriment. The idle and the illiterate will long shelter themselves under this foolish apophthegm."

With apologies to the formidable shade of Samuel Johnson, I suggest that it was not Sydenham who was talking foolishly. Two hundred years later a wise physician whose name you will know before you sit your finals, H. G. Sutton, said in the preface to a course of lectures on Medical Pathology (I must trust to memory, for I have no copy): "You will see I often quote Shakespeare; he understood human nature." Sydenham had the same opinion of Cervantes. This is obvious but not very helpful. Granted that the good doctor must understand human beings, how is one to compass understanding? Reading Cervantes and Shakespeare is not enough. I think we may learn something from the successes and failures of the apostles of Social Medicine; that is why I am going to take some of your time in telling the story of an apostle whose name is almost certainly unknown to you and whose voluminous works you are unlikely ever to read—Alfred Grotjahn (1869–1931), the first and, for all I know, last Professor of Social Hygiene in the University of Berlin.

Alfred Grotjahn's father was a busy country doctor, and his son was "up against it" from the beginning. Seventy years ago the enuresis nocturna of nervous children was treated, even in a doctor's family, drastically—with flogging, confinement to the cellar, and the throwing of pails of cold water over the patient's naked body, memories of which recurred in dreams when he was a sexagenarian. The curriculum of a classical Gymnasium (Grotjahn's account of which suggests an exaggerated parody of a British public school a hundred years ago—not the intellectual paradise which Matthew Arnold described) was thoroughly uncongenial, and its victim remained at school until he was 21, when he succeeded in passing the arbiturient examination; and, as he tells us, he acquired in all these years of study no real knowledge of the classical or any other foreign languages or of mathematics. He never did master any foreign languages; he could in later life read English and French fairly well (*leidlich*), but neither speak them nor understand them when spoken.

By the time he had attained the, comparative, freedom of a medical student Alfred Grotjahn knew a good deal about human suffering and frustration from personal experience; not being a merely selfish introvert, but a big if not great man, it led him to feel for others and set about helping them. He became a socialist and attended academic lectures on economics. In England in the early eighteen-nineties a diligent medical student could qualify in four years. Grotjahn took six, and in 1896, at the age of 27, set up in general practice in Berlin. He earned his living as a general practitioner for more than twenty years; but already, in 1896, his ambition was to devote himself to social medicine, and he published the first of his many books in 1898. It was a treatise on the social pathology of alcoholism, and he gradually attracted attention in academic circles. The then famous economist Gustav Schmoller, whose pupil he became and of whom he speaks with affectionate reverence in the autobiography part of which I am summarizing, thought well of him and tried to obtain his habilitation. The first attempt was unsuccessful; Grotjahn, like most psychological left-handers, inspired both affection and dislike; the famous Rubner was *not* one of his admirers, and Rubner was very powerful; but at last, in 1912, Grotjahn was habilitated as titular professor of social hygiene with a trifling salary and a couple of rooms on the top floor of the University Institute of Hygiene. He was now a man of 43, author of many books and papers, editor of a *Zeitschrift*, and still earning his living in general medical practice. After the war, in 1920, he became a full professor with a, theoretically, adequate salary. For three years, 1921–4, he combined his academic duties with those of membership of the Reichstag, found them, of course, hopelessly incompatible, and for the last seven years of his life devoted himself wholly to social medicine. This bald summary cannot bring home to you the intense activity of Grotjahn's life; his scientific literary output was great, but in addition he was an active promoter of social reforms and took pains to acquire the technique of committee work, parliamentary drafting, and much besides. In journalese he would be called an eminent publicist and an eminent scientist. Also, he was a busy doctor. I will add—whether it will move your pity or your admiration I do not know—he did not smoke, drank neither alcohol nor coffee, ate no flesh food, and never permitted anybody to clean his boots, dust his books, or render him any personal service.

The easiest way to understand the strength and perhaps the weakness of Grotjahn's conception of social hygiene—our social medicine—is to read his textbook, *Soziale Pathologie* (third edition, Berlin, 1923): a sample would be his account of the social pathology of tuberculosis. In the most popular textbook of medicine read when I was a student—that of Osler—the

* A paper read to the Cambridge University Medical Society on Nov. 16, 1945.

social pathology of tuberculosis was not overlooked. In the eighth edition (this was a decade later than the edition of my undergraduate days, but not, I think, fundamentally altered) one has a statistical paragraph in which "improved social condition of the people, better housing, better food, better habits" are regarded as the most important factors of a declining death rate. Nearly two pages are given to environmental and hereditary influences: "Exposure to dust, close confinement, long irregular hours and low rates of wages favour the prevalence of the disease." The popular medical textbooks of this generation—at least those I have examined—say no more, indeed rather less. Grotjahn's chapter on tuberculosis is a systematic expansion of such hints. The relation between poverty, housing, and occupation on the one hand, and higher or lower mortality from tuberculosis on the other, is illustrated on (mainly German) statistics.

We find an account of the cost, not only in mortality but also in days of sickness, for which purpose German data are peculiarly valuable because of the longer history of State health insurance in Germany. Even now, after a generation of State health insurance, there is no generally available British analysis of morbidity in occupations so good as was published in Germany with respect to the Leipzig area more than a generation ago.

Grotjahn did not let his readers lose sight of the interaction of social-economic factors, and was one of the first medical teachers to stress the folly of supposing that sanatorium treatment alone could be a panacea for a social evil.

To advocate the segregation of patients with open tuberculosis without having made adequate provision for their dependants during the treatment and for the patient's employment after "cure" is just as fatuous as the advice of the mythical physician to a phthisical charwoman that she should winter in the Riviera. To young people in 1945 this is obvious; many clever people, young and old, did not see it 30 years ago. The problem of communal health, like that of peace, is indivisible. Grotjahn was a stimulating teacher who did see the problem of social medicine as a whole. Like other men, great or small, he had weaknesses, and, as it is much easier to copy the faults of a great man than to acquire his virtues, it is not ungenerous to inquire what they were.

I have mentioned that Grotjahn obtained academic recognition very slowly. No doubt this was partly due to political heterodoxy, partly to academic trade-unionism—the professional academic sometimes resents the intrusion of amateurs—but there may have been less petty motives. Both in his *Soziale Pathologie* and in his autobiography Grotjahn speaks of the importance of medical statistics:

> "Without being myself a statistician or, through lack of the indispensable mathematical ability, being able to become one, I was, from the beginning, convinced that medical statistics must be regarded as the basis of social-pathological and social-hygienic study and therefore needed the most careful cultivation. At that time the victorious march of bacteriology had relegated medical statistics to the background. In hygienic circles then it was quite generally believed that the nature of great epidemics could be sufficiently explained on purely bacteriological lines. It was not necessary to rob bacteriology of a single leaf of her garland in order to have to reckon with strong distaste in medical circles if one, as I did, in season and out of season, insisted that this view was erroneous and that a quantitative study of the theory of epidemics was as indispensable as before the bacteriological era. Since then this view has made its own way, and now medical statistics have the hope of attracting more general interest. . . . Unfortunately, my high appreciation of statistics has never led me to do any really scientific work in their field, for I lacked the indispensable minimum of mathematical ability."—*Erlebtes und Erstrebtes*, p. 128.

In this passage there is some self-deception. It is true that no one without a natural gift for mathematical reasoning and a thorough mathematical training is likely to make a *first-rate* contribution to the theory of statistical technique; but any man of common ability can, *if he gives himself time*, acquire a competent knowledge of modern vital-statistical methods, and Grotjahn was a man of more than common ability. Grotjahn would not give himself time, and persuaded himself that he could do without the knowledge.

He could do this easily because he was much more interested in studying people than in reading about them. Speaking of the tours organized by the Health Committee of the League of Nations, he wrote:

> "I took every opportunity of leaving the official hygienic caravan to take an unconducted stroll through the working-class district of the town we were visiting. Observations made in this way tell one more about the real hygienic level of a population than the inspection of selected hospitals and institutions made to look pretty beforehand. One must watch the little children in the streets and courts of the poor districts, look at school-children as they enter and leave the school buildings with an eye to their state of health, stroll attentively through the courts and alleys, have an eye on the country folk coming to market and assess their physical quality. I am accustomed never to enter or leave a railway station outside Berlin without spending a few minutes in the waiting-rooms of lower railway classes and looking at the people there. Ten minutes in the third-class waiting-room at Copenhagen and ten minutes in the corresponding place at Belgrade give one a better idea of the differences in cultural levels within this little Europe than thick books. Anybody who has given his attention to this can soon make instructive comparisons, and receive impressions not to be had from reports, descriptions, and statistical tables."—*Erlebtes und Erstrebtes*, p. 266.

A principal interest of my life for over forty years has been the study of medical-statistical tables; that, however, does not prevent me from saying that what I have just quoted is profoundly true and adding that no one should be a doctor at all who is not, like Grotjahn, more interested in human beings than statistical tables, laboratory experiments, or even the science of medicine. Nobody without an interest in living people, just as people, will add much to social medicine. But although the chariot of the soul cannot move at all without the horses of emotion, it may come to grief if the charioteer—reason—cannot guide the horses. One may misinterpret what one sees in the third-class waiting-room. Sometimes Grotjahn was mistaken. Here is a trivial but instructive example.

Grotjahn, like many social reformers, distrusted prophylactics generally advocated by any majority, medical or lay. There are two reasons for this bias. Pioneers are in a minority and apt to assume that what is generally believed is false; they also fear that if the public think disease can be prevented by so relatively cheap a method as inoculation the public will not insist on more fundamental and costly reforms. It is much cheaper in money to vaccinate a slum population than to rehouse them. So Grotjahn was suspicious of orthodox arguments in support of vaccination against smallpox, particularly of deductions from the experience of the German Army. He used counter-arguments similar to those of Creighton—that the severity of the disease varied, that it had declined in countries where vaccination was not compulsory, etc.—and remarked that in modern times the accuracy of the records was greater than in the past, when cases of measles, scarlet fever, and chicken-pox may have been included in the statistics. So far so good, but he added to his criticism this footnote:

> "In 24 of the States of North America with 64 million inhabitants, in the first six months of 1921, 18,374 cases of smallpox were notified without a single death, and in the previous period 16,311 with one fatal case were notified. This fatality of 1 in 34,000 is only intelligible if one supposes that not all the cases were of genuine smallpox—at any rate, that chicken-pox was included. If such smallpox statistics are published and reported on in 1922, how many cases of illness may have been incorrectly included in earlier times?"—*Soziale Pathologie*, p. 25.

Quite apart from the fact that in earlier times the fatality of smallpox, as recorded, was high, this criticism of the American statistics (which could equally have been applied to our own) wholly ignores one of the most interesting epidemiological events of our own time—viz., the emergence of a variety of smallpox, sometimes called alastrim, in which the physical signs of severe "classical" smallpox *were* widespread but the patients did *not* die. It is now well known, through the flocculation test (see Craigie and Tulloch, 1931), that dermal material from patients gave positive reactions whether the clinical disease were "classical" smallpox or alastrim, but varicella crusts did not. In other words, Grotjahn's condemnation of the American statistics was ill founded. He had not himself had any practical experience of the variant which has a local interest for Cambridge men (Copeman, 1920), and his knowledge of epidemiological literature was not deep.

I do not pause upon these petty weaknesses of a faithful servant of humanity to depreciate him but to warn ourselves.

To the *Forscher* of a German university a generation ago, to a man like Rubner, Grotjahn would have seemed no *Forscher* at all, but, in our journalese, a publicist, using the researches of others, not himself making discoveries, and speaking contemptously of techniques *he* had not mastered. An unjust and incomplete statement indeed, but not without a tiny kernel of truth. If we came to think of social medicine as wholly a matter of feeling and intuition, came to speak contemptuously of "mere" laboratory science, of "mere" technique, we should fail. The rejoinder of the "mere" technician is crushing. He *does* understand his technique, he *does* make discoveries; do you? If our hopes for the future are even partly realized doctors will not be so isolated as they have been; they will have opportunities of pooling their experience at a lower level than, say, the General Register Office.

Just as most people at some time in their lives have started to keep diaries, many doctors have begun to keep case books and records. Few diarists continue for years, and perhaps not many doctors persevere. There are excellent reasons: one grows busy and has no clerical help. That is where *real* health centres are important. Those who would like to do medical-statistical or social research are deterred by the thought that their experience is limited: while Government "experts" have hundreds of thousands of data, they only have tens or hundreds. The fear is groundless. Paucity of data is partly compensated by the intimate knowledge of him to whom these data are records, reminders, of living human creatures he has known intimately. The paucity itself will be compensated, the tens and hundreds of records become thousands if doctors work together; the group must not, however, be so large that intimate knowledge of the material is lost. The doctors must work up their own material. Of course, I do not mean that a doctor must not seek technical advice: it would be silly to rush to the opposite extreme and proclaim that his intimate knowledge of the facts puts him above the reach of those vagaries of chance which "mere" statisticians emphasize. The doctor who makes neither too little nor too much of technique is the salt of the earth. It is futile to assign an order of precedence in scientific merit—like debating who was the greatest poet in history. But if I had to choose the best contribution to statistical epidemiology made in England during the last ten years I should pass over the officials and professors and cite *Epidemiology in Country Practice*, by Dr. W. N. Pickles (1939), a country doctor. Dr. Pickles knew and cared for the people the records of whom were his statistics. He *made* discoveries which eluded officials and professors whose material was just cards.

It is a very long time since research on that level has been done by town doctors. This is a model for research in social medicine.

A novelist who wrote a "best seller" fifty years ago, Miss Beatrice Harraden, has a pretty fable of a traveller in quest of the Ideal, the temple of which, he believed, was to be found on the summit of an almost unscalable mountain. After years of toil he discovered that the temple was not there at all, but down in the place from which he came—a building in which he had played as a child. You, I am sure, whose most impressionable years have been lived in this noble seat of higher learning and research, have been thrilled by the thought, the aspiration, that you too might be research workers. Do not forget there is a research laboratory greater even than the Cavendish: the streets, the homes, the factories in which common people pass their lives. There is the laboratory of him who adds to our knowledge of social medicine. Great discoveries are waiting to be made by doctors who, in the words of the Book of Common Prayer, are in love and charity with their neighbours and intend to lead a new life, if by that one may mean intend to master those tools of social research of which statistics—real statistics—and psychology are *not* the only ones but among the most important.

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IRREGULAR HAEMAGGLUTININS AFTER TRANSFUSION

BY

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The development of irregular haemagglutinins, both as a result of iso-immunization in pregnancy and after repeated blood transfusions, is now well recognized, the familiar example being the immunization of the Rh-negative patient to an Rh-positive foetus or Rh-positive transfusion. During the past year, in an attempt to detect and identify such irregular agglutinins, we have made a systematic study of 100 patients receiving transfusions.

The Investigation

The majority of the patients were routine admissions to the medical wards, but as one of the wards is associated with a research department a relatively high proportion of them suffered from blood diseases requiring repeated transfusions. Seven patients from non-medical wards were also investigated, either because they had shown a transfusion reaction or because they were known to be Rh-negative. In all there were 37 cases of haematemesis, 14 of ulcerative colitis, 31 blood dyscrasias, 7 of which were cases of aplastic anaemia; 4 were healthy volunteers who were being bled and transfused for red cell survival experiments. The remaining 14 suffered from various conditions such as battle injuries, sepsis, and menorrhagia. There were 52 women and 48 men in the series.

Methods.—The patients' ABO group and Rh group were determined, if possible before transfusion. The results of Rh grouping after transfusions were uncertain, owing to admixture with transfused cells. This was particularly so in the patients with aplastic anaemia, who were existing practically entirely on transfused blood. Samples of the donor cells were also typed for Rh in most instances. Each patient was questioned

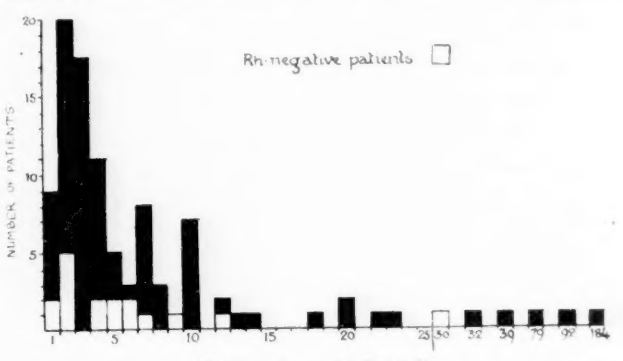

FIG. 1.—Distribution of 958 pints (544 l.) of blood in the series of 100 patients.

about previous transfusions, and an obstetrical history was taken from the women. A note was made of any reaction to transfusion. Samples of blood were taken 10 to 14 days after transfusion, allowed to clot at 37° C., and the serum separated. Each serum was set up in serial dilutions against the patients' own cells and a panel of cells of known ABO, M, N, P, and Rh types. By including always examples of Rh_1 (CDe), Rh_2 (cDE), and rh (cde) it is possible to cover all the six Rh antigens included in Fisher's scheme (Race, 1944). As A_2 individuals may occasionally develop a_1 in response to transfusion with A_1 cells (Wiener, 1941) we included A_1 cells in the panel in dealing with Group A patients. The investigations were made at 37° C., room temperature, and 4° C. The serum of any patient who had shown a reaction to transfusion or an inadequate rise of haemoglobin was, if possible, re-examined at a later date. Serum from other patients—e.g., those suffering from aplastic anaemia—was examined on several occasions in association with the repeated transfusions. The 100 patients between them received the equivalent of a total of 958 pints (544 l.) of

blood (including transfusions in the past), of which 609 pints (346 l.) were given during the period of the present observations. Most of the transfused blood was in the form of packed cells, the plasma being removed just before transfusion. The amounts received by each patient in equivalent pints of blood are indicated in Fig. 1.

Blood Groups.—Except in 11 cases where red blood cell survival experiments were carried out by giving Group O blood to Group A or B patients, the blood used was all of homologous ABO group. In accordance with the usual practice, however, no attempt was made to secure blood of the same Rh type. Seventeen patients were Rh-negative; these all received some Rh-positive blood. Fifty-eight of the remainder were grouped before transfusion and were Rh-positive; a proportion of these received Rh-negative blood. The other 25 were not grouped until after transfusion, but appeared to be positive. Apart from two patients from non-medical wards, who were included because they were known to be Rh-negative, the material was unselected with regard to Rh types. Discounting these two, 15 out of 98 were Rh-negative, which is the expected number, and the likelihood of errors in grouping having been made after transfusion is therefore not great.

Obstetrical History.—Of the 52 women 12 had had one or more stillbirths, miscarriages, or neonatal deaths, but only one had a history really suggestive of associated haemolytic disease—viz., first infant dead of jaundice at 16 days, 23 years before, then three normal children, then a miscarriage, and finally a child dead with anaemia at 14 days, 11 years before. She was Group B Rh-positive and had a mild transfusion reaction, but no antibody could be demonstrated in her serum.

Reactions.—Thirty-nine of the patients had a reaction with one or more of their transfusions or had a history of reaction in the past. Six of these were Rh-negative—i.e., Rh-negatives were not unduly frequent among the patients showing reactions. It is difficult to get an accurate record of the reaction rate in relation to the number of pints of blood, for where large transfusions have been given reactions may have been due to more than one of the donors used. So far as could be ascertained, however, there were 39 reactions in the 609 pints (346 l.) given during the period of observation, and 90 reactions in the total of 958 pints (544 l.) (Table I). The 90 include 29 in one patient (Case III, below). This same patient had only three reactions during the recent period, and she is largely responsible for the higher reaction rate in the total number of 958.

TABLE I.—*Reactions in Relation to 958 Pints of Blood*

Type of Reaction	No.
Slight rigor or rise of temperature	68
Severe rigors	5
Jaundice alone	3
Jaundice + some other signs of reaction (e.g., rigor or fever)	4
Jaundice + haemoglobinuria	1
Labial herpes	3
Diarrhoea	3
Urticaria	3

Results.—One might have expected to find irregular agglutinins in several of these patients, judging both from the frequency of reactions and from the very large number of transfusions received by some. Such agglutinins were, however, demonstrable in only two cases.

Case I

Mrs. M. S., aged 35. Inactive rheumatic carditis, severe hypochromic anaemia, and menorrhagia. No pregnancies. Group O Rh-negative (rhrh). Transfused with 1 pint (568 c.cm.) of Group O blood, later shown to be Rh-positive (Rh_1Rh_1). No reaction at the time of transfusion, but a rise of temperature to 102° F. the next day. Two weeks later no irregular agglutinin could be found, but on readmission for hysterectomy six weeks after transfusion the transfusion officer (Dr. W. Ormerod) reported difficulty in cross-matching more blood. A strong anti-Rh agglutinin of the anti-Rh_1 ($\Delta+\Gamma$ Fisher) was subsequently identified in the serum.

Case II

Some details of this case have already been reported (Callender *et al.*, 1945). Miss F. M., aged 25. ? Lupus erythematosus diffusus. Has never been pregnant. Her illness is characterized by recurrent pyrexia, transient rashes, arthritis, and persistent anaemia, for which she has received nine transfusions from eight donors over a period of a year. Her own group being O Rh-positive (Rh_1Rh_1), she has developed four different irregular agglutinins: St (γ Fisher) reacting with all Rh-negative and Rh_2 bloods, and three new antibodies which we have called "anti-Lutheran," "anti-Willis," and "anti-Levay." None of these was naturally occurring, and they are active at 37° C.

The St (γ) was responsible for two transfusion reactions—namely, jaundice, appearing 6 days after transfusion of 2 pints (1.14 l.), both subsequently shown to be Rh-negative, and at a later date a severe haemolytic reaction with haemoglobinuria and jaundice. This reaction was due to blood which was identified later as Rh_1rh. "Anti-Lutheran" was initiated by the blood of one of the two Rh-negative donors, and it therefore may have been partly responsible for the first reaction. "Anti-Willis" was associated with two febrile reactions accompanied by a rigor, but the blood which stimulated "anti-Levay" gave no apparent reaction.

The following notes are included as a contrast to Cases I and II.

Case III

Miss O. T., aged 62. Chronic aplastic anaemia, myelosclerosis. Group O, Rh group undeterminable. First became anaemic in 1937. Between Oct., 1937, and Jan., 1938, received 10 transfusions. History of reaction with all of these. June, 1939, six transfusions—again reactions consisting of rigors and vomiting. First admitted to the Radcliffe Infirmary, Oxford, April, 1940. Twenty-four subsequent admissions up to May, 1945. During this time she has received transfusions on 33 occasions, being given 167 bottles of blood, mostly in the form of packed cells. From April, 1940, to May, 1944, she showed some form of reaction every time she was transfused. On four out of seven occasions since then she has had no reactions. In spite of reactions she has always shown an adequate rise of haemoglobin after transfusion. In 1942 difficulty was once found in cross-matching blood, slight microscopical agglutination occurring with all the Group O donors tested. This difficulty has not recurred, and repeated examinations for irregular agglutinins have been negative.

TABLE II.—*Reactions in Case III; April, 1940, to May, 1945*

Type of Reaction		No.
Vomiting +	Slight febrile reaction	8
	Rigor	13
	Severe rigor with high fever	3
	Labial herpes	2
	Urticaria	1
	Diarrhoea	2

Cold Agglutinins.—We did not find any irregular agglutinins which were more active at temperatures below 37° C., but when looking for such antibodies we thought it worth while to record our findings in relation to the ordinary cold agglutinins. Cold agglutination was examined for microscopically, sediment being removed with as little disturbance as possible and the results being classified as for Rh grouping. The titres of cold agglutinin found in this way are shown in Fig. 2. In 5 cases the serum was

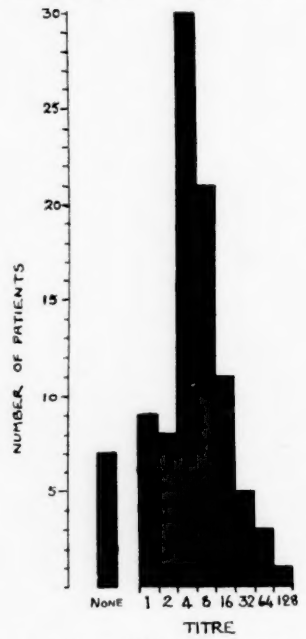

FIG. 2.—Titre of cold agglutinins in the sera of 95 patients.

not examined for cold agglutinins ; in only 7 out of 95 was none found. Every serum showing cold agglutination reacted with the respective patient's own cells as well as with those of others in the panel. No excessively high titres were noted. Among those showing a titre of 16 were three of the four healthy women volunteers who had been bled and transfused for red cell survival experiments. Taking this as an arbitrary limit of normal, only 9 showed a higher titre. Three of these patients had had haematemeses, one had a carcinoma of the colon, one was pregnant, one had a haemolytic anaemia, while the patient with the highest titre of cold agglutinin—i.e., 128—had leukaemia. No correlation between the titre of cold agglutinin and the number of transfusions given was noted either in the series in general or in patients whose serum was examined repeatedly in association with numerous transfusions. Fifteen patients had cold agglutinins which were also active at room temperature. In studying their sera more fully it was noted that the cells of one donor (M. S.) reacted over a wider thermal range than others in the panel. One serum (H. R.), while reacting with all bloods, including the patient's own cells, at 4° C., gave agglutination at room temperature with the cells of M. S. alone of the panel. The agglutination was present up to above 26° C. but disappeared entirely on warming to 37° C. Some 150 other bloods tested with this serum gave about 13% similar positive results at room temperature regardless of their ABO, M, N, P, or Rh types.

"*Auto-agglutinins.*"—Two patients with haemolytic anaemia, one with an associated lymphatic leukaemia, showed auto-agglutination at 37° C., room temperature, and 4° C. The sera did not agglutinate any other than the patients' own cells at 37° C. In the blood of the leukaemic patient the agglutination of the cells was so strong that it was impossible to get an even cell suspension and to be sure of the results of Rh grouping. A similar difficulty has been reported by Reisner and Kalkstein (1942).

Discussion

Both the patients in this series who were shown to have developed irregular agglutinins present some unusual features. Mrs. M. S. demonstrates clearly the possibility of producing antibody of the Rh type after a single transfusion without previous sensitization by pregnancy. A theoretical danger is here suggested, for were she to have an Rh-positive child the infant would probably suffer from haemolytic disease, and would not escape as is usual for the firstborn. Fortunately, few people are so easily sensitized, or this would be a very real danger in giving transfusions to young women.

The other patient, Miss F. M., illustrates in the first place the possibility of immunizing an Rh-positive patient to the rh antigen. This is, of course, recognized in relation to certain instances of haemolytic disease of the newborn, but has not previously been found in response to transfusion alone. Furthermore, the development of four distinct agglutinins in response to transfusion appears to be unique. Wiener, Silverman, and Aronson (1942) have reported two cases of multiple immunization, and suggest that there exist "certain constitutionally susceptible individuals who can be easily sensitized." The findings in this series certainly bear this out. In contrast to Cases I and II, 10 of our patients received 20 pints (11.4 l.) or more of blood without developing evidence of intra-group incompatibility. One Rh-negative patient suffering from leukaemia had 30 pints (17 l.), and the patient (Miss O. T.) with aplastic anaemia has been given 184 pints (104.5 l.) over the past eight years.

With regard to the incidence of the development of irregular agglutinins, De Gowin (1945) in a series of 5,386 consecutive transfusions found 6 reactions which were attributable to Rh antigenicity. In two of these there had been previous iso-immunization by pregnancy. Young and Karihar (1945) in a series of nearly 1,000 transfusions found 5 reactions in 3 patients which were due to acquired sensitivity to the Rh factor. Two of these patients had certainly been immunized by previous pregnancies ; the third may have been so, though the evidence was inconclusive. Ayer and Kammer (1944) found two irregular agglutinins in a series of 46 patients receiving 231 transfusions. In our series we have 5 antibodies demonstrable in 958 transfusions, but four of these were found in one patient.

For various reasons it seems very doubtful whether any of these series gives a true representation of the incidence of iso-immunization after transfusion. In the first place, agglutinins may be transient in their appearance and may thus escape detection if the sera have not been examined at the appropriate interval after transfusion. But the time of appearance is variable, and in some patients, as in Mrs. M. S., there may be considerable delay before agglutinins become evident. Here the antibody was detected only when the patient was readmitted six weeks after the original transfusion. In a case reported by Moloney (1945) anti-Rh was detected only on the 53rd day after transfusion, none having been found the previous week.

A further difficulty is the occasional development of the "incomplete" form of antibody (Race, 1944 ; Wiener, 1944), which not only fails to give agglutination but may inhibit or block the action of an agglutinin actually present. The new "Coombs test" should be of great value in investigating such cases (Coombs, Mourant, and Race, 1945).

In De Gowin's and Ayer and Kammer's series, only those patients who had transfusion reactions were investigated for the development of agglutinins. These are, of course, the patients in whom one is most likely to find such antibody, but the transfusion which stimulated the production of one of the new antibodies in our patient F. M. was unaccompanied by any suspicious reaction. This raises another point—namely, that new antibodies can be detected only if samples of the donor cells are available for setting up repeatedly against the respective recipients' sera. There are obvious practical difficulties in doing this on a large scale, and it was not attempted except in the case of F. M. The next best procedure is to set up the sera under test against a large panel of known cells and to investigate any discrepancies in the results. A second irregular agglutinin in the serum of F. M. was detected by this method at a time when the St (γ) was at its height.

Summary

Out of 100 patients transfused with 958 pints (544 l.) of blood two patients were shown to have developed irregular agglutinins.

One Rh-negative patient developed anti-Rh$_1$ ($\Delta+\Gamma$ Fisher) after a single transfusion without previous iso-immunization by pregnancy.

One Rh-positive patient developed St (γ Fisher) and three new antibodies, all active at 37° C.

Cold agglutinins were found in the sera of 88 out of 95 patients examined, in titres of 1 to 128. In 15 of these the agglutinins were also active at room temperature.

In two patients an agglutinin was found which was active at 37° C. and reacted with the patients' own cells only.

We wish to thank Prof. L. J. Witts for his interest and advice, and Prof. D. F. Cappell and Dr. R. R. Race for help they have given, particularly in the investigation of Case II. We are grateful also to the blood transfusion officers for their co-operation and to the staff of the Radcliffe Infirmary, who have allowed us to study patients under their care.

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Lord Rushcliffe, chairman of the Nurses' Salaries Committee, the Mental Nurses Subcommittee (appointed in association with that committee), and the Midwives Salaries Committee, has sent a letter to Mr. Aneurin Bevan, the Minister of Health, regarding the review of salaries of mental nurses and of midwives which is now being undertaken. In order to dispel any doubts which might arise while this review is taking place, Lord Rushcliffe invited Mr. Bevan to make it clear that any increases recommended following this review will have effect from Jan. 1, 1946. This is the date on which the increases of salary recently announced for certain grades of nurses became effective. Lord Rushcliffe further intimated that the method adopted in applying these recent increases will also be proposed in the case of any increases decided on for mental nurses and midwives. In his reply Mr. Bevan has informed Lord Rushcliffe that he readily accepts these proposals.

CLINICAL DIAGNOSIS OF LUMBAR INTERVERTEBRAL DISK PROTRUSIONS

WITH INDICATIONS FOR THEIR OPERATIVE REMOVAL*

BY

JOHN E. A. O'CONNELL, M.S., F.R.C.S.

Posterior crural or sciatic and anterior crural pain are familiar symptoms. In the past the commonly accepted view has been that such pain results from an interstitial neuritis of the sciatic or anterior crural nerves, or that it is referred from lesions of the muscles, ligaments, and joints of the lower back. While the milder cases recover with a variety of treatments based on these aetiological hypotheses the results of such therapy have been disappointing in the more severely affected patients. During the last ten years much light has been shed on the aetiology of these crural pains by neurosurgeons, led by Mixter (Mixter and Barr, 1934; Mixter and Ayer, 1935).

Table indicating the Common Clinical Features of Lumbar Disk Protrusions and Emphasizing the Signs of Localizing Value

Level of Disk Protrusion	L5–S1	L4–L5	L3–L4
Extradural nerve related to protrusion	1st sacral	5th lumbar	4th lumbar
Site of pain	Posterior crural→sole and lateral margin of foot	Posterior crural→dorsum and medial margin of foot	Anterior crural→medial malleolus
Site of paraesthesiae	Sole of foot	Dorsum of foot	Subcutaneous surface of tibia
Spinal deformity	Lumbar lordosis diminished Scoliosis	Lumbar lordosis diminished Scoliosis	Lumbar lordosis diminished Scoliosis
Spinal mobility	Flexion: gross reduction Extension: slight reduction	Flexion: gross reduction Extension: slight reduction	Flexion: slight reduction Extension: ? reduction more severe than with lower lesions
Straight-leg-raising test	+ +	+ +	− (+)
Drop test	+	+	−
Femoral-nerve-stretch test	−	− (+)	+ +
Motor disturbance	Wasting and loss of tone in glutei, hamstrings, and calf. Weakness in hallux	Wasting and loss of tone in glutei, hamstrings, and calf. Weakness in hallux	Wasting, loss of tone, and weakness in quadriceps
Dermatome in which sensation may be diminished	S1	L5	L4
Reflex change: Knee-j.	+ +	+	− (+)
Reflex change: Ankle-j.	− (+)	+ −	+ +

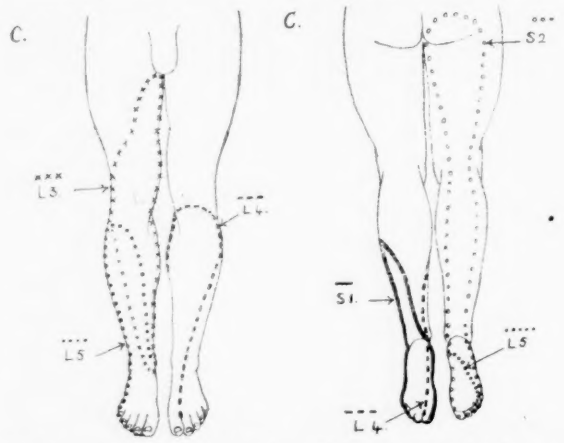

FIG. 1.—Showing extent and position of certain lumbar and sacral dermatomes (after Foerster).

Evidence has gradually accumulated to suggest that, at least when the symptoms are severe, by far their commonest cause is a lumbar intervertebral disk protrusion. The presence of anterior crural or sciatic pain should therefore immediately suggest the possibility that a protrusion of a lumbar intervertebral disk has occurred. This possibility becomes a probability if the leg pain is associated with a characteristic series of physical signs in the lumbar spine and affected lower limb (as indicated in the accompanying Table; see also Fig. 1).

Diagnosis

A variety of different lesions may occasionally give rise to the syndrome under discussion. However, experience suggests that all of these are much less common than lumbar intervertebral disk protrusions, and but three occur with any frequency. These are a tumour within the spinal canal, inflammatory or malignant disease of the spinal column (the former usually tuberculous and the latter metastatic), and spondylolisthesis. Clinical examination alone will not infrequently suggest the presence of one of these three much less common causes of lower-limb pain, but accessory methods of investigation may be required. In the first place radiography of the lumbar spine must never be omitted, and will demonstrate the presence of spondylolisthesis or vertebral disease. Further, it may show changes suggestive of the presence of an intraspinal neoplasm, and will sometimes demonstrate the existence and the level of an intervertebral disk protrusion. The latter is revealed by narrowing of an intervertebral interval and perhaps localized osteo-arthritic changes at this level. Secondly, lumbar puncture with manometry and examination of the cerebrospinal fluid may be helpful if the presence of a neoplasm is suspected, since such a lesion is much more likely to be associated with a subarachnoid block than is the usual type of disk protrusion. This is due to the fact that most lumbar intervertebral disk protrusions occupy a relatively small proportion of the spinal canal and therefore interfere little with the passage of cerebrospinal fluid to and from the sacral cul-de-sac. On the other hand, by the time a tumour lying among the roots of the cauda equina is of sufficient size to give rise to well-marked symptoms it will usually have produced a subarachnoid block—often a complete one. Thirdly, myelography with oxygen or some radio-opaque material may be required. This can certainly be helpful in atypical cases, but in the present series the procedure has been employed with diminishing frequency as experience has increased. That myelography does not necessarily lead to more accurate diagnosis is shown by the following figures. Of 39 explorations on the basis of positive myelographic findings 6 (15%) proved negative, while of 201 explorations carried out without previous myelography 7 (3.5%) were negative.

Thus it is believed that in the majority of cases the existence of a lumbar intervertebral disk protrusion can be discovered by clinical examination alone, radiography of the lumbar spine being the only accessory method of examination used as a routine. Further, it is considered that careful clinical examination will not infrequently provide evidence which allows of the location of the level of the affected disk. This belief is based upon the observation that a disk protrusion of the usual type is related to one extradural intraspinal nerve only and the theory that the majority of the symptoms and signs depend on this relationship. The clinical picture resulting from the protrusion will vary according to the particular extradural nerve affected. In the Table the clinical findings in protrusions of the last three lumbar disks are contrasted. In this table it is not intended to suggest that such clinical findings will invariably direct one to the correct level, but simply to indicate that clinical examination gives considerable assistance in locating the affected disk. Should the level first explored at operation be normal a second level compatible with the clinical picture can be readily exposed. With the modern operative technique, which necessitates the removal of only a small part of one lamina to expose an intervertebral disk, there is little disadvantage in the exposure of two disks if it appears to be indicated.

An Essential Difference

Before considering the indications for operation in these cases it is important to emphasize the essential difference between an intraspinal neoplasm and the usual type of intervertebral disk protrusion. A neoplasm gives rise to progressively increasing compression of surrounding nervous tissue. A mass of disk tissue, when it protrudes into the lumbar spinal canal, usually occupies but a small part of this canal. The dural theca will usually be slightly displaced and deformed, but its

* A paper given at a meeting of the British Orthopaedic Association in June, 1945.

contained nerve roots will rarely suffer as a result. On the other hand, the single extradural intraspinal nerve which is related to the protrusion can be displaced to a limited extent only because of its attachments—proximally to the dura and distally to the limb plexus to which the nerve passes. When the limit of possible displacement is reached the nerve will be stretched over the mass of displaced disk tissue. Were it not for its relatively fixed position in the antero-lateral part of the spinal canal the extradural nerve would be displaced like the dural theca and a protrusion of ordinary size would be almost symptomless so far as the lower limb is concerned. It is thus believed that the severity of the patient's symptoms is closely related to the degree of tension in the affected extradural nerve. With the passage of time after the occurrence of a protrusion several factors probably tend to bring about a reduction of tension in this nerve and thus a spontaneous diminution in the symptoms due to tension. The nerve may elongate before the stretching force and thus become less tense. With the passage of time the protrusion frequently tends to diminish in size, and in this way the stretching force will be diminished. In cases in which the protrusion has perforated the posterior longitudinal ligament such diminution in size may be due to the loss of fluid from the protrusion—so that in time it may be converted into a low calcified ridge. When the posterior longitudinal ligament is intact it seems likely that with the patient in the horizontal position the bulge of disk tissue may be withdrawn to some extent into the intervertebral interval which previously contained it. Again, a change in relationship of protrusion and extradural nerve may bring relief—the nerve slipping from a position of tension on the summit of the protrusion to one of relaxation in a trough to either side. Here, then, are possible explanations of the spontaneous improvement in or even disappearance of symptoms which frequently occurs in the presence of protrusion of a lumbar intervertebral disk.

It must be admitted that when a patient's symptoms disappear spontaneously and operation is therefore unnecessary it cannot be stated with absolute certainty that an intervertebral disk protrusion was responsible for the pain. However, there is much to suggest that the same lesion is responsible whether the pain be persistent or of short duration. Many cases in which the presence of an intervertebral disk protrusion is eventually confirmed by operation give a history of recurring attacks of pain separated by intervals of freedom. Moreover, in both groups the history and physical signs are identical. Finally, as has been indicated above, there are a number of reasons why pain due to an intervertebral disk protrusion may diminish spontaneously. It is thus believed that spontaneous recovery does occur in the presence of a lumbar intervertebral disk protrusion, and, further, that it is a frequent occurrence. In the neurosurgical department in which the series of patients now under discussion were treated probably less than one patient in every three referred because of low back and crural pain is submitted to operation. Each patient must receive careful study, and operation must not be based on the reasoning that because a patient has low back and crural pain he therefore has a lumbar intervertebral disk protrusion and it should be removed. Moreover, an operation which has not been preceded by adequate study may require a wide exposure and inflict unnecessary trauma, or indeed it may be performed uselessly and harmfully in the presence of some lesion other than a disk protrusion—such as, for example, a neurofibroma arising from one of the nerve roots of the cauda equina. A final reason for careful and complete examination of these patients is the advancement of knowledge which will result. Thus a better understanding of this large group of patients will be attained, and incidentally the development and disappearance of neurological disturbances due to nerve-root lesions of varying degrees of severity can be studied.

Indications for Operation

The indications for excision of the intervertebral disk protrusion in these cases will now be considered. In some patients the need for operation is obvious. The pain may be intensely severe though of short duration (e.g., two months), or it may be less severe but have caused long-standing disability. At the other extreme there are patients with pain so mild or of such short duration that nothing more is necessary than to explain the natural tendency to spontaneous recovery. It is in the cases with symptoms intermediate in severity between those of these two groups that careful judgment is required in selecting patients for surgery. Three aspects must be considered—the severity and duration of the symptoms, the severity of the neurological signs, and the severity of the tension signs.

The first consideration is therefore the patient's estimate of the severity of his symptoms. This has obvious importance, but is rarely enough in itself to indicate operation if not supported by physical signs. As is true in the treatment of other chronic pains, so also in crural pain it is desirable that one avoid submitting to operation patients whose capacity to bear pain is markedly subnormal and also those who, for various reasons, may be exaggerating mild symptoms. The duration of the pain is important too. It is only in rare cases that operation has been performed for pain of less than three months' duration, and then only when it has been extremely severe. The second consideration is the severity of the neurological signs. The importance of these signs in diagnosis has already been discussed. Further, when the neurological disturbance is severe it will constitute an indication for operation. Occasionally a lumbar intervertebral disk protrusion may give rise to severe cauda equina injury, with the usual motor sensory and sphincteric disturbance. Less uncommon is the group of cases in which gross weakness and sensory loss are present in one lower limb. A series of such cases in which the disk protrusion occurred during labour has been reported elsewhere (O'Connell, 1944). However, in the majority of patients the neurological signs are unobtrusive and do not constitute an indication for operation. As is widely recognized, an ankle-jerk lost during an acute attack of sciatica may still be absent years after the sciatic pain has disappeared, and the same may at times be true of muscle-wasting and areas of sensory loss. The third consideration, and certainly the most valuable indication for operation, is the severity of the tension signs. When these are well marked and the symptoms are of sufficent duration operation is clearly required.

Several of these tension signs have been discussed in a previous communication (O'Connell, 1943). It has been suggested that the diminution or absence of lumbar lordosis and lumbar scoliosis (including the alternating form) were postures designed to relax the stretched extradural nerve. The straight-leg-raising test was positive because hip flexion with an extended knee quickly caused a further increase of tension in the extradural nerve crossing the protrusion. Such an increase in tension would of course aggravate the patient's pain, and the greater the tension already present in the extradural nerve the lower the angle through which raising of the straight leg will be permitted. A modification of the straight-leg-raising test which has been previously described as the drop test has been found useful (Fig. 2). Both legs are raised together to a point just

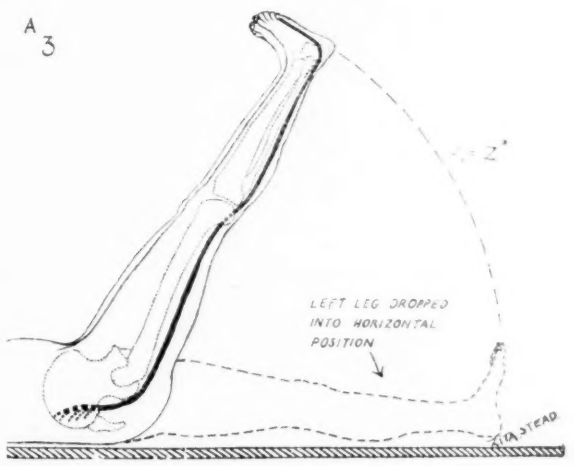

FIG. 2.—The drop test.

short of that which causes pain. The sound leg is then allowed to drop to the bed, and an exacerbation of pain occurs if the test is positive—as it very often is in cases requiring surgery. Another tension sign that has been found of value in upper

lumbar disk protrusions is one which has been called the femoral-nerve-stretch test. A protrusion of the second lumbar disk is related to the third lumbar nerve and one of the third lumbar disk to the fourth lumbar nerve, and while little tension is developed in them by straight-leg raising it has been shown (by dissections) that they rapidly become tense when the hip is hyperextended and the knee flexed. In cases of upper lumbar disk protrusion the movement causes a marked increase in the patient's pain (Fig. 3).

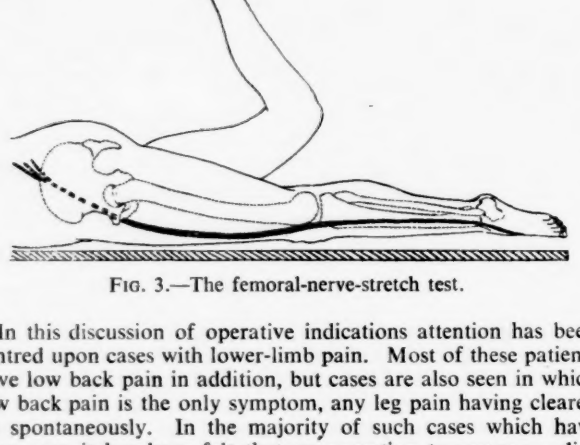

FIG. 3.—The femoral-nerve-stretch test.

In this discussion of operative indications attention has been centred upon cases with lower-limb pain. Most of these patients have low back pain in addition, but cases are also seen in which low back pain is the only symptom, any leg pain having cleared up spontaneously. In the majority of such cases which have been seen it has been felt that an operation to remove a disk protrusion would be unsound, and they have been referred to the orthopaedic surgeon for treatment—including spinal fixation in the more severe cases. In a very few cases in which severe low back pain was associated with attacks of locking, a disk protrusion has been removed with gratifying relief of symptoms.

Conclusion

These observations are based upon the clinical and operative findings in a personal series of over 220 proved cases of lumbar intervertebral disk protrusion treated at St. Bartholomew's Hospital and in an E.M.S. neurosurgical unit during the period Jan., 1938, to May, 1945. Many of the cases have been referred to me by Mr. S. L. Higgs, at whose request I have made this communication and for whose help and encouragement I should like to express my gratitude. Among other colleagues who have referred the patients in this group to me I am particularly in the debt of Mr. L. W. Plewes and Wing Cmdr. J. H. Hunt.

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The Central Council for Health Education will hold one residential summer school in England this year, at Somerville College, Oxford, from Aug. 14 to 28 inclusive. The directors of the school will be Miss D. E. M. Gardner, M.A., head of Child Development Department, University of London Institute of Education, and Dr. Robert Sutherland, medical adviser and secretary to the council. The school is intended primarily for those who have to do with the training and care of children and young people—teachers, youth leaders, health visitors, school nurses, educational and medical administrators, training organizers, welfare superintendents, sanitary inspectors, and students. The object of the school is to present the general content, methods, and applications of health education. Mornings will be devoted to lectures in physiology, psychology, the biology of infection, sociology, and health, as well as to lectures, demonstrations, and discussions on the methods and applications of health education. Evening lectures will deal with wider educational, psychological, social, philosophical, and spiritual aspects. There will be opportunity for discussion under experienced leaders, for viewing health films and acquiring technique in visual aids. The afternoons will be left free for optional visits, sports, and physical recreation under expert leadership. Those wishing to book accommodation or to be supplied with further details about the school should write to the medical adviser and secretary, Central Council for Health Education, Tavistock House, Tavistock Square, W.C.1.

SURGICAL TREATMENT OF DYSENTERIC LESIONS OF THE BOWEL AMONG ALLIED PRISONERS OF WAR IN BURMA AND THAILAND

BY

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Dysentery has levied a tragic toll among prisoners of war engaged in constructing the Thailand–Burma railway. Multiple diseases have been the rule and malnutrition rife. For example, numerous prisoners suffered simultaneously from dysentery, malaria, tropical ulcer, and gross malnutrition. Avitaminosis, particularly that associated with the B_2/B_6 complex, has been common. Some of the special problems in the treatment of dysentery have been:

(i) The appalling severity of the lesions, in many cases demonstrated to have *Entamoeba histolytica* infection.

(ii) The ever-embarrassing shortage, and in many cases the complete absence, of specific amoebicidal drugs.—For example, in working camps providing the most wretched conditions of life, at times not even magnesium sulphate could be obtained, and recourse was had to such pathetic devices as the administration of charcoal manufactured locally. Emetine, when available, was often obtained only sporadically, in clandestine ways, and had to be used with the utmost economy, with a view not to cure but to prolong life.

(iii) Facilities for microscopy were very frequently not available as a diagnostic aid in the early stages.

(iv) Chronicity of the bowel infection and the establishment of an "emetine-resistant" subject deriving little relief from treatment, or almost immediately relapsing.—This may be due in large part to the extremely low vitality of the individual through the multiplicity of diseases, malnutrition, and complete exhaustion. Many subjects were forced to continue working with established dysentery, and commonly months went by with only the crudest symptomatic treatment being possible, so that the bowel suffered gross damage. When this chronicity was established large quantities of emetine, even to a total of more than 50 gr. (3.25 g.) given over the period of illness, quite failed to provide relief.

Pathology

In practically all those seeking surgical relief *E. histolytica* had been demonstrated in the stools, and in most cases proctoscopy revealed typical amoebic ulceration in the lower bowel. Only one case in the series under discussion was not proved to be amoebic. Undoubtedly in some subjects both amoebic and bacillary infection were present, as reflected by the inclusion in the stools, in addition to *E. histolytica*, of a bacillary type of exudate and macrophage cells. In the acute phase of the disease, with constant passage of blood and mucus —up to 60 motions daily—ulceration was often not the usual limited and circumscribed amoebic lesion, but took on very florid forms associated with devastating lesions of the large bowel, notably a gross cellulitic swelling; and tumour formation occurred, or even huge patches of sloughing gangrene, spreading at times to the peritoneal coat. These florid lesions were chiefly in the caecal region and right half of the colon; spread to the ileum, however, was negligible.

The complication in this type of infection was all too frequently peritonitis, due either to the seeping of infection through the bowel or, less commonly, to actual perforation. In a few cases severe haemorrhage occurred, associated with passage of sloughs.

In the more common cases of prolonged chronic infection with the passage of blood, mucus, and pus over long periods, and gradual exhaustion, it was often noted at operation that inflammation, scarring, and fibrosis were present in the caeco-appendicular area. The caecum and ascending colon were fixed and indurated, with adhesions, and the peritoneal folds and

appendices epiploicae were grossly thickened. A common feature was a tendency to obliteration of the taenia and loss of haustration, the bowel being thickened, congested, and fibrosed, with roughened peritoneum and a brownish-red mottling. In two cases with no previous history of appendicitis the appendix had almost entirely sloughed away (ileostomy series). In general the appendix shared in the pathological process to a greater or lesser extent. In one case a cellulitic condition of the caecum and ascending colon of slow onset was associated with a retrocolic perforation and abscess formation (ileostomy series). Stricture formation after sloughing was met with principally in the rectum, but one patient became obstructed with a similar fibrotic process in the ascending colon near the hepatic flexure, a stricture also being present in the rectum. In two cases with gross fibrotic thickening in chronic colon lesions pathological section revealed *E. histolytica* embedded deeply in the fibrosed coats of the bowel. One interesting case of polyposis of colon and rectum requiring resection was associated with this deep infection.

Clinical Features

For the most part surgical cases fell into two groups: (1) Earlier cases of more acute nature, in which the principal difficulty was to afford relief of pain, tenesmus, wasting, deterioration, and loss of morale owing to lack of specific drugs to control the disease. For this type of case appendicostomy and caecostomy have been most effective and have certainly saved a number of lives. Indeed, the effect of this operation has in many cases been dramatic. (2) Cases of longer standing with a grossly damaged colon which, even when specific amoebicidal drugs have been repeatedly given in quantity, have failed to respond. In some of these cases, of years' duration, the complete rest of the large bowel afforded by ileostomy has been invaluable.

The Case for Surgery

Despite almost insuperable difficulties medical treatment of amoebic cases has been most diligent, and every form of available medication was tried in ingenious ways. In many cases emetine was for periods not available, and when it was it had to be used most sparingly in small courses to give the maximum life-saving effect. Ipecacuanha, emetine, emetine bismuth iodide, yatren, stovarsol, carbarsone, as well as drugs of the sulphapyridine series and sulphaguanidine, were, however, administered in quantities normally curative to many patients who finally required surgical treatment.

Bowel lavage per anum was frequently employed, using various solutions such as saline, silver nitrate, copper sulphate, potassium permanganate, eusol, rivanol, tannic acid, quinine, and yatren when available. The results were most disappointing, and in general experience cast doubts on the feasibility of thoroughly flushing out the large bowel in this way. This was mainly due to the intense irritability of the ulcerated bowel, the patient being unable to retain more than a few fluid ounces before voiding.

The failure of medical treatment and the wretched plight of dysentery patients led to an interest in surgical relief even though surgical measures are given little prominence in standard works. In Thailand this failure led at first to the adoption of appendicostomy and caecostomy, as affording easy means of efficiently washing out the bowel. This measure began to be practised in 1943 independently in various centres such as Kanburi Hospital (MacFarlane and de Soldenhoff), Takanoon (Pemberton), Tarsau and Chungkai Hospitals (Dunlop). The striking relief given to patients who seemed beyond hope caused much gratification.

In the meantime Lieut.-Col. A. E. Coates, A.A.M.C., introduced in Burma the technique of ileostomy, and on his arrival at Nakompaton stimulated interest in the hospital clinical society by showing a case in splendid condition after this operation many months previously. This case had been deteriorating hopelessly and had at no time in the course of the disease received any emetine. Lieut.-Col. Coates believed that there would be a small residue of chronic cases for which this measure would be invaluable.

It must be noted that without emetine any surgical attack on the appendix or caecum involves some danger of spread of amoebic infection to the abdominal wall. I had observed this catastrophe in two patients previously, and was of the opinion that appendicostomy and caecostomy were much more satisfactory if a small quantity of emetine was available to follow the operation.

The freedom of the ileum from infection and the complete diversion of the faecal current by ileostomy presented arresting advantages; the only disadvantage was that a more severe second operation would ultimately be required, and that many patients felt some reluctance to endure prolonged faecal soiling. It was evident, however, that patients could enjoy perfect health without colon function; indeed they could carry on useful work, thus allaying fears that this operation was impracticable under the poor hospital conditions available and that it might upset the slender nutritional balance of those already suffering from gross malnutrition.

Operations performed at Nakompaton P.O.W. Hospital in 1944–5

Appendicostomy.—8 cases. One of these was formally closed recently, and one closed spontaneously after the disease process had subsided. The remainder have been left open as an insurance measure, despite the fact that every patient except one has regained good health.

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Excision of Sigmoid Colon after Transverse Colostomy.—One case of amoebic dysentery and gross polyposis of the left half of colon and upper rectum.

Resection of Right Half of Colon and Terminal Ileum and Ileotransversostomy.—One case—that of a fibrous stricturing lesion of the ascending colon. Rectal stricture was also present. Preliminary ileostomy was performed to relieve intestinal obstruction.

Excision of Rectal Stricture and Anastomosis.—One case of complete stricture of the rectum.

Spinal analgesia was employed in all cases except one in which a local infiltration was used.

Deaths

There were three deaths among ileostomy patients. Two of these were due to operation being deferred until the patients were in a moribund state, death occurring on the fourth and tenth post-operative days. The other death occurred after the patient had temporarily regained good health, and was due to intercurrent disease. In the case of resection of the right half of the colon death was due to peritonitis and acute dilatation of the stomach. The health of this patient was greatly undermined by an amoebic abscess of the liver and lung and by two serious operations for a lip carcinoma with secondary glands in the neck. In assessing mortality rates it must be remembered that all these patients were considered unlikely to survive without surgical intervention.

Nature of Operation; Complications and Results

Appendicostomy.—In all cases except two the appendix was brought out through a small transverse muscle-splitting incision in the right iliac fossa, the caecum being sutured to the peritoneum. In two cases the appendix was brought out through a small separate stab incision. In all cases the appendix was immediately divided and a tube inserted at operation. It has been clearly shown that if any difficulty is experienced in delivering the appendix there is no objection to dividing the meso-appendix, but it is necessary to leave intact the small arterial branch at the base of the organ. No cases have shown any serious infection; the wounds healed well and none have given any anxiety. One case developed a small ventral hernia after spontaneous closure. This was ultimately repaired and the stump of appendix removed. Six of the eight cases regained good health, five having passed clearance tests of more than six negative stools. Two of these received no emetine post-operatively—only bowel lavage with yatren and copper sulphate solution. One patient who appears to be in perfect health has on one occasion shown *E. histolytica* cysts in stools. Another has merely held his own, as against previous steady deterioration, and still has active infection. One case failed

lumbar disk protrusions is one which has been called the femoral-nerve-stretch test. A protrusion of the second lumbar disk is related to the third lumbar nerve and one of the third lumbar disk to the fourth lumbar nerve, and while little tension is developed in them by straight-leg raising it has been shown (by dissections) that they rapidly become tense when the hip is hyperextended and the knee flexed. In cases of upper lumbar disk protrusion the movement causes a marked increase in the patient's pain (Fig. 3).

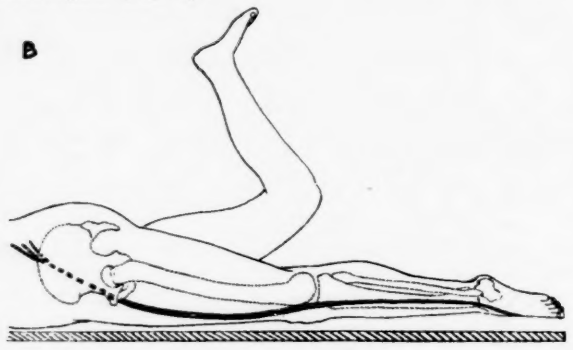

FIG. 3.—The femoral-nerve-stretch test.

In this discussion of operative indications attention has been centred upon cases with lower-limb pain. Most of these patients have low back pain in addition, but cases are also seen in which low back pain is the only symptom, any leg pain having cleared up spontaneously. In the majority of such cases which have been seen it has been felt that an operation to remove a disk protrusion would be unsound, and they have been referred to the orthopaedic surgeon for treatment—including spinal fixation in the more severe cases. In a very few cases in which severe low back pain was associated with attacks of locking, a disk protrusion has been removed with gratifying relief of symptoms.

Conclusion

These observations are based upon the clinical and operative findings in a personal series of over 220 proved cases of lumbar intervertebral disk protrusion treated at St. Bartholomew's Hospital and in an E.M.S. neurosurgical unit during the period Jan., 1938, to May, 1945. Many of the cases have been referred to me by Mr. S. L. Higgs, at whose request I have made this communication and for whose help and encouragement I should like to express my gratitude. Among other colleagues who have referred the patients in this group to me I am particularly in the debt of Mr. L. W. Plewes and Wing Cmdr. J. H. Hunt.

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The Central Council for Health Education will hold one residential summer school in England this year, at Somerville College, Oxford, from Aug. 14 to 28 inclusive. The directors of the school will be Miss D. E. M. Gardner, M.A., head of Child Development Department, University of London Institute of Education, and Dr. Robert Sutherland, medical adviser and secretary to the council. The school is intended primarily for those who have to do with the training and care of children and young people—teachers, youth leaders, health visitors, school nurses, educational and medical administrators, training organizers, welfare superintendents, sanitary inspectors, and students. The object of the school is to present the general content, methods, and applications of health education. Mornings will be devoted to lectures in physiology, psychology, the biology of infection, sociology, and health, as well as to lectures, demonstrations, and discussions on the methods and applications of health education. Evening lectures will deal with wider educational, psychological, social, philosophical, and spiritual aspects. There will be opportunity for discussion under experienced leaders, for viewing health films and acquiring technique in visual aids. The afternoons will be left free for optional visits, sports, and physical recreation under expert leadership. Those wishing to book accommodation or to be supplied with further details about the school should write to the medical adviser and secretary, Central Council for Health Education, Tavistock House, Tavistock Square, W.C.1.

SURGICAL TREATMENT OF DYSENTERIC LESIONS OF THE BOWEL AMONG ALLIED PRISONERS OF WAR IN BURMA AND THAILAND

BY

E. E. DUNLOP, M.S., F.R.C.S.
Lieut.-Col., A.A.M.C.

(Nakompaton P.O.W. Hospital)

Dysentery has levied a tragic toll among prisoners of war engaged in constructing the Thailand–Burma railway. Multiple diseases have been the rule and malnutrition rife. For example, numerous prisoners suffered simultaneously from dysentery, malaria, tropical ulcer, and gross malnutrition. Avitaminosis, particularly that associated with the B_2/B_6 complex, has been common. Some of the special problems in the treatment of dysentery have been:

(i) The appalling severity of the lesions, in many cases demonstrated to have *Entamoeba histolytica* infection.

(ii) The ever-embarrassing shortage, and in many cases the complete absence, of specific amoebicidal drugs.—For example, in working camps providing the most wretched conditions of life, at times not even magnesium sulphate could be obtained, and recourse was had to such pathetic devices as the administration of charcoal manufactured locally. Emetine, when available, was often obtained only sporadically, in clandestine ways, and had to be used with the utmost economy, with a view not to cure but to prolong life.

(iii) Facilities for microscopy were very frequently not available as a diagnostic aid in the early stages.

(iv) Chronicity of the bowel infection and the establishment of an "emetine-resistant" subject deriving little relief from treatment, or almost immediately relapsing.—This may be due in large part to the extremely low vitality of the individual through the multiplicity of diseases, malnutrition, and complete exhaustion. Many subjects were forced to continue working with established dysentery, and commonly months went by with only the crudest symptomatic treatment being possible, so that the bowel suffered gross damage. When this chronicity was established large quantities of emetine, even to a total of more than 50 gr. (3.25 g.) given over the period of illness, quite failed to provide relief.

Pathology

In practically all those seeking surgical relief *E. histolytica* had been demonstrated in the stools, and in most cases proctoscopy revealed typical amoebic ulceration in the lower bowel. Only one case in the series under discussion was not proved to be amoebic. Undoubtedly in some subjects both amoebic and bacillary infection were present, as reflected by the inclusion in the stools, in addition to *E. histolytica*, of a bacillary type of exudate and macrophage cells. In the acute phase of the disease, with constant passage of blood and mucus—up to 60 motions daily—ulceration was often not the usual limited and circumscribed amoebic lesion, but took on very florid forms associated with devastating lesions of the large bowel, notably a gross cellulitic swelling; and tumour formation occurred, or even huge patches of sloughing gangrene, spreading at times to the peritoneal coat. These florid lesions were chiefly in the caecal region and right half of the colon; spread to the ileum, however, was negligible.

The complication in this type of infection was all too frequently peritonitis, due either to the seeping of infection through the bowel or, less commonly, to actual perforation. In a few cases severe haemorrhage occurred, associated with passage of sloughs.

In the more common cases of prolonged chronic infection with the passage of blood, mucus, and pus over long periods, and gradual exhaustion, it was often noted at operation that inflammation, scarring, and fibrosis were present in the caeco-appendicular area. The caecum and ascending colon were fixed and indurated, with adhesions, and the peritoneal folds and

appendices epiploicae were grossly thickened. A common feature was a tendency to obliteration of the taenia and loss of haustration, the bowel being thickened, congested, and fibrosed, with roughened peritoneum and a brownish-red mottling. In two cases with no previous history of appendicitis the appendix had almost entirely sloughed away (ileostomy series). In general the appendix shared in the pathological process to a greater or lesser extent. In one case a cellulitic condition of the caecum and ascending colon of slow onset was associated with a retrocolic perforation and abscess formation (ileostomy series). Stricture formation after sloughing was met with principally in the rectum, but one patient became obstructed with a similar fibrotic process in the ascending colon near the hepatic flexure, a stricture also being present in the rectum. In two cases with gross fibrotic thickening in chronic colon lesions pathological section revealed *E. histolytica* embedded deeply in the fibrosed coats of the bowel. One interesting case of polyposis of colon and rectum requiring resection was associated with this deep infection.

Clinical Features

For the most part surgical cases fell into two groups: (1) Earlier cases of more acute nature, in which the principal difficulty was to afford relief of pain, tenesmus, wasting, deterioration, and loss of morale owing to lack of specific drugs to control the disease. For this type of case appendicostomy and caecostomy have been most effective and have certainly saved a number of lives. Indeed, the effect of this operation has in many cases been dramatic. (2) Cases of longer standing with a grossly damaged colon which, even when specific amoebicidal drugs have been repeatedly given in quantity, have failed to respond. In some of these cases, of years' duration, the complete rest of the large bowel afforded by ileostomy has been invaluable.

The Case for Surgery

Despite almost insuperable difficulties medical treatment of amoebic cases has been most diligent, and every form of available medication was tried in ingenious ways. In many cases emetine was for periods not available, and when it was it had to be used most sparingly in small courses to give the maximum life-saving effect. Ipecacuanha, emetine, emetine bismuth iodide, yatren, stovarsol, carbarsone, as well as drugs of the sulphapyridine series and sulphaguanidine, were, however, administered in quantities normally curative to many patients who finally required surgical treatment.

Bowel lavage per anum was frequently employed, using various solutions such as saline, silver nitrate, copper sulphate, potassium permanganate, eusol, rivanol, tannic acid, quinine, and yatren when available. The results were most disappointing, and in general experience cast doubts on the feasibility of thoroughly flushing out the large bowel in this way. This was mainly due to the intense irritability of the ulcerated bowel, the patient being unable to retain more than a few fluid ounces before voiding.

The failure of medical treatment and the wretched plight of dysentery patients led to an interest in surgical relief even though surgical measures are given little prominence in standard works. In Thailand this failure led at first to the adoption of appendicostomy and caecostomy, as affording easy means of efficiently washing out the bowel. This measure began to be practised in 1943 independently in various centres such as Kanburi Hospital (MacFarlane and de Soldenhoff), Takanoon (Pemberton), Tarsau and Chungkai Hospitals (Dunlop). The striking relief given to patients who seemed beyond hope caused much gratification.

In the meantime Lieut.-Col. A. E. Coates, A.A.M.C., introduced in Burma the technique of ileostomy, and on his arrival at Nakompaton stimulated interest in the hospital clinical society by showing a case in splendid condition after this operation many months previously. This case had been deteriorating hopelessly and had at no time in the course of the disease received any emetine. Lieut.-Col. Coates believed that there would be a small residue of chronic cases for which this measure would be invaluable.

It must be noted that without emetine any surgical attack on the appendix or caecum involves some danger of spread of amoebic infection to the abdominal wall. I had observed this catastrophe in two patients previously, and was of the opinion that appendicostomy and caecostomy were much more satisfactory if a small quantity of emetine was available to follow the operation.

The freedom of the ileum from infection and the complete diversion of the faecal current by ileostomy presented arresting advantages; the only disadvantage was that a more severe second operation would ultimately be required, and that many patients felt some reluctance to endure prolonged faecal soiling. It was evident, however, that patients could enjoy perfect health without colon function; indeed they could carry on useful work, thus allaying fears that this operation was impracticable under the poor hospital conditions available and that it might upset the slender nutritional balance of those already suffering from gross malnutrition.

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Deaths

There were three deaths among ileostomy patients. Two of these were due to operation being deferred until the patients were in a moribund state, death occurring on the fourth and tenth post-operative days. The other death occurred after the patient had temporarily regained good health, and was due to intercurrent disease. In the case of resection of the right half of the colon death was due to peritonitis and acute dilatation of the stomach. The health of this patient was greatly undermined by an amoebic abscess of the liver and lung and by two serious operations for a lip carcinoma with secondary glands in the neck. In assessing mortality rates it must be remembered that all these patients were considered unlikely to survive without surgical intervention.

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to make progress, and subsequently underwent ileostomy with excellent results.

Caecostomy.—One patient, though suffering serious chronic infection, did not desire ileostomy. He had had a previous appendicectomy, so caecostomy was performed. The result has been excellent after assiduous bowel lavage. He has passed a clearance test of six stools. He still wears the tube, but without inconvenience. In many cases the complete relief of symptoms has been most dramatic with these simple operations. For example, in some instances the number of motions has fallen immediately from 20–30 a day, the patient never having more than 1 to 2 daily after operation, and blood and mucus have quickly disappeared from the stools, with rapid cessation of pain and distress. This relief is thought to be due to three factors: (i) temporary paralytic ileus of the bowel following operation; (ii) release of wind through a "bung-hole"; (iii) the effect of lavage. This undoubtedly has considerable value, as demonstrated by the relief expressed by many patients and by fluctuation when patients were moved and it was not carried out. In stubborn cases large quantities of fluid have been given by the drip method with good results. The most effective post-operative method has been a course of emetine (usually only 5 gr. (0.32 g.) available), and bowel lavage with preliminary saline followed by yatren solution 2½%. Rivanol solution 1/1000 and $CuSO_4$ 1/5000 have given good results. Usually not more than 5 yatren wash-outs could be carried out.

Ileostomy.—The site of election for operation has been 18 in. (45 cm.) from the ileo-caecal junction, and in six cases the incision has been a small right rectus-splitting one, with the proximal limb of the bowel at the distal extremity of the wound. In the remaining cases a small muscle-splitting incision as for appendicectomy has been employed, with the proximal limb on the medial side. One interstitial mattress stitch through an avascular point in the mesentery, together with a few sutures of the seromuscular coat of the bowel to the peritoneum, has fixed the bowel satisfactorily. In general, long exploratory incisions have not been used. In three cases a very diseased appendix was removed at operation. On three occasions the bowel was not divided at the original operation, a suture being fixed into the proximal limb through the belly wall. The procedure did not provide as satisfactory drainage as with a clean division of the bowel and for the time being the faecal current was not completely diverted, so now in all cases the bowel is divided and two tubes inserted—one for draining and the other for lavage of the colon. The main complications met with have been minor attacks of obstruction during the first month, associated with hiccup and sometimes vomiting and distension. Approximately half the cases have shown this complication in greater or lesser degree. The high-residue diet of prisoners of war has been found largely responsible, and with a strict diet of low residue it has usually been possible to leave the tube in for 7 days, until the wound has quite healed. The oedema of the exteriorized gut takes about one month to subside, and care is needed in regard to diet during that period. Lavage of the proximal limb of the ileum, together with removal of the tube and dilatation of the stoma, may be required to clear obstruction. Pituitrin has been found useful. Care must be exercised regarding fluid replacement, as in the early stages some 50 fl. oz. (1.4 l.) may drain away daily. Blood transfusions and saline administrations are often necessary in such cases. Saline is easily given by the proximal limb of the bowel as well as by other routes.

A temporary skin irritation often arises during the first few days of wearing an ileostomy bottle. These have been improvised from Dutch water-bottles, Service pattern. No serious case of digestive action on the tissues has occurred, but the application of serum of slaughtered bullocks has been found useful in certain cases. Usually vaseline, zinc cream, or talcum has been effective. The skin rapidly becomes toughened. No serious wound infections have developed. Prolapse of the intestine by intussusception has occurred in two cases—one a rectus-splitting case, the other a small transverse-iliac-fossa incision. This was readily replaced.

The general condition of these patients has been most satisfactory and their gain in weight and vigour most convincing. It is particularly noted that during the first few weeks after operation the lower ileum to some extent takes over the function of the large bowel and the discharge becomes much thicker and less fluid. Usually blood clears up in a period of from a few days to a month, and in some cases the patients have not had any rectal motion for weeks or months except with an occasional wash-out.

In several cases no emetine could be given post-operatively, yet the patients have made good progress, gaining weight rapidly. Occasional bowel wash-outs—e.g., weekly—are useful in removing debris from the colon, but where these have not been possible some patients have gone weeks and months without any bowel action. Four who have recently been operated on are still not entirely free from rectal motions with blood and mucus; but all have made excellent progress, gaining much weight, and already are altogether brighter and more cheerful. One of these required drainage of a right-sided retroperitoneal pericolic abscess, with only intermittent discharge through the bowel.

Seven cases, representing operations performed a varying number of months ago, have all regained something like normal health and vigour, and most of these patients are quite active, eating a normal diet and doing light work. In the absence of adequate emetine two of these have had a slight relapse with passage of a little blood and mucus per rectum, but this rapidly cleared up with bowel lavage. In the remaining five, rectal lesions were observed to heal in two to three months, and more than six examinations of bowel content revealed no *E. histolytica* infection. The ileostomy bottle usually requires emptying five times in the 24 hours, but patients find life quite tolerable after the previous misery.

Closure of Enterostomy.—This step has been deferred at Nakompaton pending *x*-ray and sigmoidoscopic investigation of the large bowel. Lieut.-Col. A. E. Coates closed the original ileostomy case brought from Burma after two years' rest of the bowel, and this patient is now in excellent health. It was noted that one case arriving at Nakompaton had been previously closed by Major T. M. Pemberton, R.A.M.C., after approximately three months' ileostomy drainage. This patient has remained quite well. In general it is felt that the opening in the bowel is an excellent insurance against recurrence of active symptoms, and that the decision regarding closure is best deferred until after evacuation from Thailand.

Summary and Conclusions

Brief particulars are given of a series of cases submitted to operation at Nakompaton after failure of medical treatment of amoebic dysentery infection.

The cases were all of exceptionally severe nature, and facilities for treatment were poor.

Most cases had become emetine-resistant.

Appendicostomy and caecostomy have been proved very useful measures for cases with less severe bowel damage, the infection usually being of a few months' standing. These operations have, however, given excellent results in some severe cases of long duration, and even in this type of case well deserve a trial if the patient does not desire ileostomy. More radical operation can always be done if this simple procedure fails. It is desirable but not essential to use emetine in the post-operative phase, and yatren wash-outs have been found most effective.

Ileostomy has given excellent results in the most severe emetine-resistant cases even when emetine has not been available post-operatively. It is the most certain method of arresting the disease.

Experience in Thailand has led us to believe that surgery has a definite place in the treatment of dysentery, and that early consideration should be given to this measure in cases where medical treatment has failed and the patient is continuing to deteriorate.

The results obtained by surgical methods have been due to the close collaboration not only of several surgeons but also of the physicians in charge and the pathological staff, as well as the medical orderlies, who have laboured devotedly in the operating theatre and wards. Special mention is due to the physicians especially concerned with these cases. These are Lieut.-Col. MacFarlane, R.A.M.C., Lieut.-Col. H. Larsen, N.E.I. Medical Services, and Major W. E. Fisher, A.A.M.C., Capt. J. Street, R.A.M.C.; also Major T. Marsden, R.A.M.C., for his ingenious pathological assistance.

Typical Appendicostomy Case Report

British O.R., R.A.S.C.—The onset of dysentery occurred in a Thailand jungle camp in Feb., 1943. Symptoms were very severe—approximately 20 motions daily with much blood. No emetine was

at first available, and he was treated with magnesium sulphate and potassium permanganate bowel wash-outs. Later this patient had the advantage of 32 gr. (2.13 g.) emetine in 6 courses, several courses of ipecacuanha, 2 courses of santalin (30 tablets), and various bowel wash-outs. Sulphaguanidine was also tried, and gave a transient fall in the number of motions. He resisted all treatment, finally receiving practically no benefit from emetine administration. Before operation his condition was wretched; weight 7½ st. (47.6 kg.). He had a wasted appearance, could get no rest because of pain, tenesmus, and very frequent motions, and his appetite had failed. He begged for operative treatment. Abdominal examination revealed diffuse tenderness and thickening of the colon, but no tumour formation. Proctoscopic examination showed very active ulceration of the rectum of amoebic type. Stool tests repeatedly showed *E. histolytica,* red blood cells, and pus cells.

Operation, Aug. 8, 1944.—Spinal procaine 150 mg. Morphine 1/4 gr. (16 mg.). A small transverse skin-crease incision was made in the right iliac fossa and the muscles were split. The caecum was thickened, indurated, and bound down to the right iliac fossa by adhesions. The appendix was long, thickened, congested, and indurated, and was found in the ileo-caecal angle. No ulceration of the mucosa was seen. To mobilize the appendix most of the meso-appendix was clamped and tied, leaving the arterial branch at the base; the appendix was then brought out of the wound and the caecum sutured with fine silk through the peritoneum. The peritoneum was closed with catgut, the muscles with catgut, and the skin with silkworm-gut. Fine transfusion tubing was passed into the appendix to the caecum at a point 1 in. (2.5 cm.) from the abdominal wall, to which the tube was then anchored with a stitch. Dressings of soft paraffin and tinct. benzoini co. were applied.

On the first post-operative day yatren wash-outs, 2½%, preceded by saline 1 pint (568 c.cm.); five daily wash-outs with yatren solution were given, followed for a time with copper sulphate 1/5000 daily. Emetine was available on the fourth post-operative day, and 5 gr. (0.32 g.) was followed by a course of emetine bismuth iodide 15 gr. (1 g.). The wound healed by first intention, sutures being removed on the seventh day. The stoma was excellent, with a mucocutaneous junction. There was no untoward reaction.

Progress.—By the fourth post-operative day the patient had one motion daily, firm and almost clear of blood. Appetite improved right from the start and the pain disappeared. In four months he had put on over 3 st. (19 kg.) in weight. Proctoscopy in Feb., 1945, revealed a healed rectal mucosa. Now, after twelve months, he is perfectly healthy, and has had no relapse; he has gained nearly 4 st. (25.4 kg.) in weight and works as a voluntary orderly. All stool tests have been negative—the last a series of six done in Aug., 1945. The appendicostomy stoma causes no particular inconvenience.

STREPTOCOCCAL MILIARY INFILTRATION OF THE LUNGS

WITH DESCRIPTION OF A CASE

BY

PHILIP ELLMAN, M.D., F.R.C.P.

In Charge of Medical Division, Leatherhead Emergency Hospital, etc.

The existence of an infiltration of lung tissue, giving rise to radiological shadows almost identical with those of pulmonary tuberculosis but not apparently connected with the tubercle bacillus, is well known (Scadding, 1937, and others). In a consideration of the aetiology of subacute pulmonary infections (Davidson and Ellman, 1941) attention was drawn to the fact that many pulmonary lesions are now brought to light which, before the days of adequate *x*-ray examination, passed undetected, and, while in most of these the nature of the disease is not in doubt, in many the differential diagnosis is still a matter of considerable difficulty. In other words, radiological diagnosis, no less than physical diagnosis, has its limitations; nor does it always provide a short cut to that understanding of the morbid anatomy of disease which can be reached only by a synthesis of all the available data.

Since the publication of the above-mentioned paper I have encountered a number of acute and subacute non-tuberculous pulmonary infections closely simulating, in their clinical and radiological appearances, pulmonary tuberculosis, but showing signs of healing by natural resolution within a relatively short period. In some such cases the streptococcus has undoubtedly been a causal organism. A case of an apparent acute streptococcal miliary infiltration of the lungs is now described.

History of Case

Miss A., aged 20, was admitted, almost moribund, as a case of acute leukaemia to Leatherhead Emergency Hospital on Aug. 5, 1945. She presented a picture of gross anaemia and a virulent infection. She gave a history of increasing fatigue, weakness, and pallor over the past two to three months. Her periods, previously irregular but normal, had during that time been scanty. Immediately before admission, in addition to aggravation of these symptoms, she had noticed acute dyspnoea on exertion, attacks of giddiness and palpitation, and a slight cough on the morning of admission. There was no history of any obvious loss of weight. During the spring of 1945 a slight pyrexial attack was accompanied by a sore throat and a cough with a little yellowish sputum. She also had a slight haemoptysis, after which the sputum was blood-stained. This attack lasted two weeks, and was followed by a similar attack, but without the haemoptysis, a few months later. There was otherwise no noteworthy previous history. The family history was likewise negative, and her occupation was of no significance so far as her illness was concerned. Seven weeks before the onset of this illness she had attended a mass radiography clinic, when her lung fields were reported as clear.

On admission she was grossly anaemic, too weak to cough, and very "bubbly"; her respirations were shallow and rapid (36); the

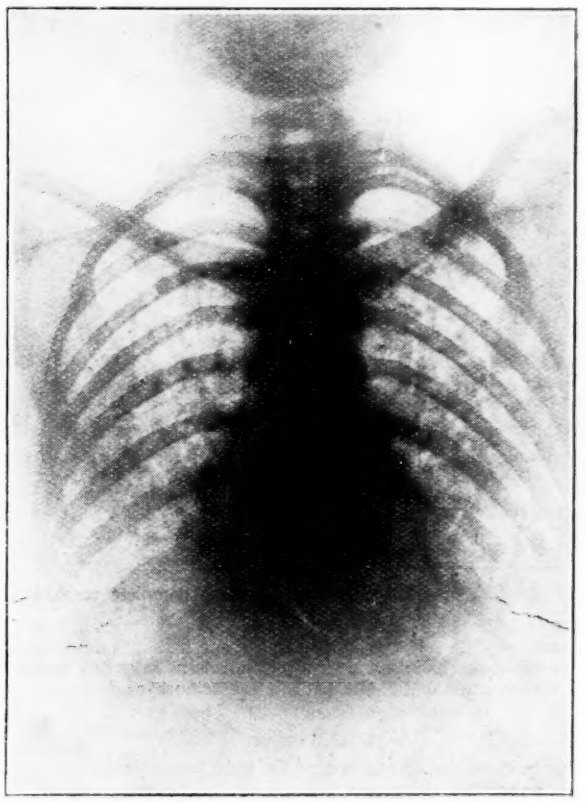

FIG. 1.—Skiagram of chest from a case of acute streptococcal miliary infiltration of the lungs.

pulse was thin, rapid (120), and irregular; temperature 101°. Examination of the lungs showed scattered crepitations throughout both lung fields and broncho-vesicular breath sounds. The heart was not enlarged clinically; the rhythm was regular; the heart sounds were very faint; there were no significant murmurs; the blood pressure was 130/60. There was no lymphadenopathy or splenomegaly. Examination of the fundi showed them to be normal, but a large haemorrhage was seen in the right retina. A blood count showed a haemoglobin of 23%; the white cells numbered 26,000, mainly polymorphonuclear in type; otherwise there was nothing significant in the differential count. *X*-ray examination of the chest showed diffuse miliary infiltration of all zones of both lungs, but the apices were singularly clear (Fig. 1).

The next day her pulse was more regular and the respirations not quite so shallow. The physical signs in the chest were unchanged, and the temperature was still 101°. Following half a pint (284 c.cm.) of blood, given very slowly, her haemoglobin rose to 30%; the white cells numbered 23,000 (polymorphs 90%). She was given large doses of iron and ascorbic acid, and 3/4 pint (426 c.cm.) of concentrated blood again that night. On Aug. 7 the physical signs in her chest were

less marked; the respirations were still raised (34), but they were not quite so shallow. The haemoglobin was now 36%. Repeated examination of the sputum (laryngeal mirror) showed an almost pure growth of haemolytic streptococci, but no tubercle bacilli.

Penicillin, 20,000 units three-hourly, was started soon after admission, a total of 960,000 units being given in six days. Two days after beginning the penicillin (Aug. 9) her temperature had dropped to normal, the respirations were 28, and the haemoglobin had risen to 40%; the retinal haemorrhage was still visible. A day later her respirations had also dropped to normal; the physical signs in the lungs were markedly diminished and the adventitious sounds were confined to the bases. Her haemoglobin continued to rise steadily.

Serial *x*-ray examination of the chest showed progressive resolution, and within ten days the miliary infiltration had completely

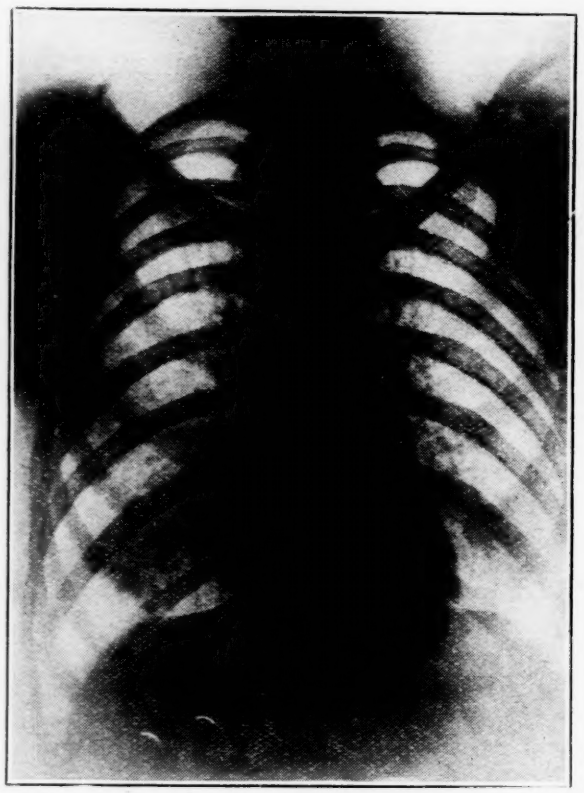

FIG. 2.—Skiagram of same case, showing complete resolution.

resolved (Fig. 2). The retinal haemorrhage had also resolved and the blood count had become entirely normal. A gastric residuum at this time showed that the patient was achlorhydric.

Discussion

The role of the streptococcus in pulmonary infections of an acute pneumonic or bronchopneumonic character, as well as varied subacute pulmonary infiltrations of similar aetiology, is significant, although in some cases debatable, and there is an increasing literature on this subject. In the case I have recorded the sputum was collected on a laryngeal mirror and precautions were taken to avoid contamination by mouth organisms. A heavy growth of haemolytic streptococci was repeatedly found and, bearing in mind the severe toxaemia and the clinical and radiological lung findings, there was undoubtedly a haematogenous lung infection of streptococcal origin. Admittedly, many bacteriological examinations of sputum will show a mixed bacterial flora, including streptococci; but in this case the sputum, apparently uncontaminated, contained on each occasion an almost pure growth of haemolytic streptococci.

Twining (1938), among others, records that streptococcal pulmonary infections may closely simulate acute or chronic pulmonary tuberculosis. Miliary infiltrations of the lung, apart from those of a tuberculous nature, may occur as a miliary carcinomatosis, in silicosis, in bronchiolitis (particularly following influenza and measles), in Hodgkin's disease as a lymphadenomatosis, in leukaemias, in certain pulmonary mycoses, in bilharziasis, in Boeck's sarcoidosis, in miliary amyloidosis of the lung, in miliary stasis of the lung with mitral stenosis, etc. Twining also refers to a case of bronchiolitis obliterans described even at necropsy as a miliary tuberculosis until histological sections finally disproved this. The case was reported by Assmann, and was an end-result of influenzal bronchiolitis.

I use the term "miliary" in this case because the radiological appearances of the lung simulated a miliary tuberculosis. Gloyne, in a personal communication, informs me that he has seen, at necropsy, several cases of an acute streptococcal disseminated bronchopneumonia, in some of which "silicosis" had been suspected; and in the present case some would perhaps have used the term "disseminated streptococcal bronchopneumonia." My own feeling, however, is that the miliary nature of the radiological appearance of the lungs more than justifies the description "streptococcal miliary infiltration of the lungs." It is of interest to note that in the case here reported the apices were not involved in the skiagram.

It is presumed that this patient had had a simple achlorhydric anaemia for some months and that an added streptococcal infection at this stage had rendered her a victim of streptococcal septicaemia with a pulmonary localization of a miliary nature. I have not been able to find a similar case in the literature.

Summary

A case of simple achlorhydric anaemia complicated by the sudden onset of acute streptococcal septicaemia with miliary pulmonary localization is presented. A dramatic response to penicillin therapy (aided by transfusions and iron therapy for the anaemia) resulted in complete resolution of the lung lesion.

I am indebted to Dr. D. Nabarro for the pathological investigation.

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HEREDITARY CLUBBING OF DIGITS IN TWO FAMILIES

BY

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The whole question of clubbing of the digits was reviewed in detail in 1942 by Mendlowitz, and he included a discussion of hereditary clubbing in which different fingers or toes may be involved in varying degree. Some fingers or toes may be spared, but thumbs are nearly always included. Usually the patient cannot remember ever being free from clubbing, but the condition may become more pronounced in middle life. Horsfall (1936) described three families with a total of 20 cases, the abnormality occurring in four generations in one family. In 18 of his 20 cases all the digits were clubbed in the affected members, but in the other 2 cases (belonging to one family with 10 affected members) only a minority of digits were involved.

Personal Cases

In the first family I encountered (see family tree, Fig. 1), all the affected persons had bilateral symmetrical clubbing involving the first three fingers (Fig. 2) and toes. The fourth and fifth digits were quite normal. Clubbing varied in degree from member to member, and became more pronounced with increasing age. All the affected members, and many others, had webbing of the second and third toes.

In the second family (Figs. 3 and 4) the defect was in the little finger only, and was asymmetrical. Thus in the mother the left little finger was much more affected than the right, whereas in the three affected children the right little finger was chiefly involved. Toes were normal in this family, and webbing was absent. The mother stated that neither her siblings nor her parents were affected.

Skiagrams showed shortening of the phalanges of the affected digits in both families. There was no disease associated with the clubbing in these families.

Capillary Microscopy

Mendlowitz pointed out that studies of clubbed fingers by capillary microscopy had yielded results of doubtful value. I found that, in clubbing, capillaries are generally but not invariably much lengthened and congested, with a tendency to

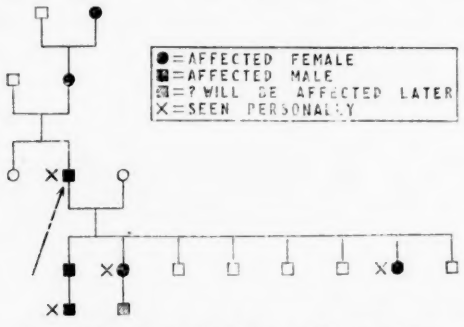

FIG. 1.—Tree of Family 1. Hereditary clubbing of first, second, and third fingers and toes—bilateral and symmetrical.

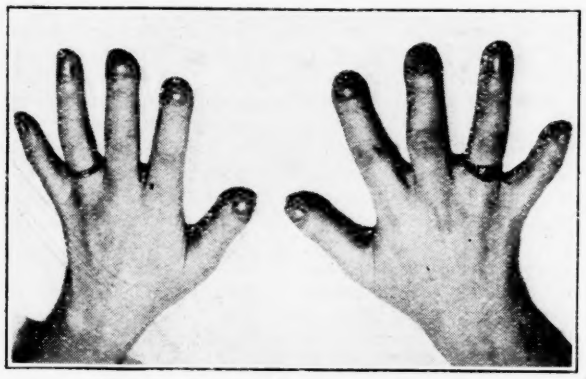

FIG. 2.—Photograph of hands (Family 1).

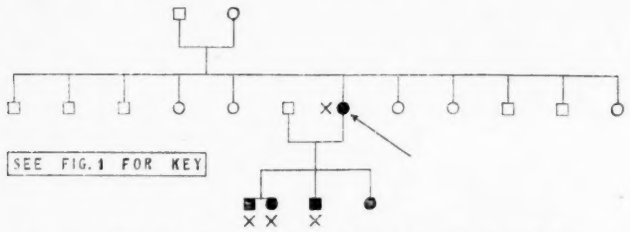

FIG. 3.—Tree of Family 2. Hereditary clubbing of little finger.

FIG. 4.—Photograph showing clubbing of little finger (Family 2).

the formation of (microscopic) petechiae. In these families nail-bed capillaroscopy showed no difference whatever between the clubbed fingers and the normal fingers. In the first family microscopy was done on one affected member only. In all fingers there was the usual number of capillaries per field; but they were long, with wide loops and wide limbs, and blood-flow was rapid. In the second family capillaries were studied in two affected members. They were normal.

I thank Mr. J. R. M. Whigham for his help, and Dr. J. E. McCartney and Mr. J. Andrews for the photographs.

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Medical Memoranda

Leiomyoma of the Ileum producing Intussusception

The following case is considered worthy of record in view of the relative rarity of the condition.

CASE REPORT

A man aged 41 was admitted to Llandough Hospital, Cardiff, on Nov. 23, 1944, with a history of pain in the upper abdomen for about 3 to 4 years. The pain came on half to one hour after a meal and was relieved by alkalis. Three months prior to admission he noticed that he was becoming constipated, and the night before he entered hospital some blood was passed per rectum. In addition, for about two months there had been pain in the region of the umbilicus. The day before admission a barium meal had been given, and this induced severe abdominal pain.

On examination his general condition was good and, apart from tenderness in the right iliac fossa, no other abnormal signs were elicited. On Dec. 1 a palpable mass was found in the right lower abdominal quadrant. A barium meal and follow-through revealed no lesion in the stomach, duodenum, or small intestine, but the occult blood was positive on two occasions. Subsequently a barium enema was given, and this revealed an obstructive lesion in the upper part of the ascending colon.

Laparotomy was performed on Jan. 3, 1945, and this revealed an ileo-colic intussusception, with the apex lying about halfway along the ascending colon. Reduction by the usual technique was easy, and examination showed the apex of the intussusception to have been occupied by a tumour of the ileum. The tumour, which was endo-enteric, was situated approximately 6 in. (15 cm.) from the ileo-caecal valve. Accordingly about 8 in. (20 cm.) of terminal ileum containing the tumour was excised and continuity re-established by end-to-side ileocolostomy. Convalescence was uneventful, and he was discharged from hospital on the 15th post-operative day.

Examination of the excised specimen showed a firm mass about the size of a walnut, projecting into the lumen of the gut, its surface being bloodstained.

Pathological Report.—"The tumour is a submucous leiomyoma which is forming a polypoid mass projecting into the lumen of the intestine. Histologically it appears unusually vascular in parts and there is some ulceration on the surface, but there is nothing to suggest malignancy."

COMMENTARY

Leiomyoma of the small intestine is uncommon. Smith (1937) collected 109 leiomyomata of the small intestine, and Horsley and Keasbey (1939) reported 15 additional cases. Morison (1941) in a series of 21 benign tumours of the small intestine found 2 cases of leiomyomata, both in the ileum; and Golden and Stout (1941) recorded 6 cases—two duodenal, one jejunal, and three ileal locations. Weber and Kirklin (1942), analysing a 32-year period at the Mayo Clinic, found 14 cases of small-gut leiomyomata in a collection of 41 benign tumours. These tumours are more common in the ileum than in the jejunum or duodenum (Moore and Schmeisser, 1934; Railford, 1932), the average age incidence being 30 to 40 years (Rankin and Newell, 1933).

The two outstanding features of the reported cases are mechanical obstruction and melaena. In the submucosal variety the commonest presenting finding is intestinal obstruction due to intussusception, while in the subserosal variety melaena is the principal clinical feature (Smith, 1937).

The case here recorded confirms Smith's finding that submucosal leiomyomata tend to cause intussusception.

I am indebted to Dr. Jethro Gough, of the Pathology Department of the Welsh National School of Medicine, for the pathological report.

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Cardiff.

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Reviews

PRINCIPLES OF HUMAN PHYSIOLOGY

Principles of Human Physiology. Originally written by Prof. E. H. Starling. By C. Lovatt Evans, D.Sc., F.R.C.P., F.R.S. Ninth edition. Chapters on the Special Senses by H. Hartridge, M.D., Sc.D., F.R.S. (Pp. 1,155; 668 illustrations, 7 in colour. 36s.) London: J. and A. Churchill. 1945.

The 9th edition of the *Principles of Human Physiology* appears without its former prefix and is now more closely associated with Prof. Lovatt Evans, who has actually been responsible for the work since the 4th edition. While it is true that the main emphasis in medical education should be the inculcation of fundamental principles rather than a mass of factual knowledge, it is nevertheless necessary to remember that these same principles are derived from facts. It is a merit of the book that physiology is presented as an experimental science. Probably because of this outlook the author has never claimed that the work should be a text in clinical physiology, although the requirements of the medical student are fully met and full use is made of clinical references. Though it may not be the easiest book for the student to work from, there can be little doubt that with the aid of good teachers, who will assist him to obtain the right perspective, he will find "Starling" gives him a lasting foundation on which to build his physiological knowledge and its clinical applications.

There are no great changes in the general arrangement of this edition, but rewriting in many places has served not only to bring the work abreast with recent knowledge, as in the sections dealing with electrical exploration of the nervous system, or lymph formation, but also to emphasize the co-ordinated working of the different systems of the body, which is the essence of modern physiological thought. This approach to the subject is shown by some examples from the headings of the different sections of the book: Systems for Distribution of Materials—Blood, Circulation and Respiration; The Intake of Materials—Nutrition, etc.

An innovation is the prefacing of the chapters by historical notes; and although they are perhaps too short to be of value in themselves, yet they should serve as useful stepping-stones to historical reading for the many students who will continue to use this textbook.

THE FIRST THOMAS WAKLEY

Battling Surgeon. By Charles Brook. (Pp. 176. 2s. 6d.) Glasgow: The Strickland Press. 1945.

If I cannot subscribe fully to Dr. Brook's hero-worship, I can congratulate him heartily on a very interesting book about a man to whom our profession can never be too grateful. But when he says, "I say, and I say it with emphasis, that great as Joseph Lister was, he was a mere pygmy by the side of Thomas Wakley," I cannot help feeling some doubt as to his sense of proportion. But I can go a long way with him in his admiration for Wakley, for I was, so to speak, "brought up on him." The country doctor to whom I was acting as a very young unqualified assistant had a long series of early volumes of the *Lancet* in which I browsed and thereby imbibed a taste for the politics of our profession and an unholy and quite uncritical admiration for Wakley's gift for invective. Those were the days in which antagonists in the press and on the platform had no use for the rapier. Wakley was an expert with the bludgeon and obviously enjoyed using it. Resisting temptation, I shall give only one example quoted by Dr. Brook. Wakley was bestowing a parting benediction on the editor of a rival journal which had just expired. "He was disingenuous without plausibility and dishonest without elasticity. He had the wriggling lubricity, without the cunning, of a serpent."

If we are occasionally repelled by the brutality of his language, we must not forget that Wakley was living in a medical world in which abuses were rampant. Few men can have had a fuller life; a medical student (on very short commons), a practitioner for a time in London, the founder and editor of the *Lancet*, and, along with this, coroner and Member of Parliament. In each of these fields he made his mark as a reformer, and in spite of his pugnacity became a popular national figure respected even by his opponents. He gained his spurs as a fighting man by his attacks in the young *Lancet* on the almost incredible nepotism and corruption on the staffs of the London teaching hospitals. He published, for the first time, reports of hospital lectures and operations accompanied by scathing criticism. He naturally found himself in the Law Courts. Indeed, for many years he lived in a vortex of legal actions, generally as defendant, and often proved himself equal to the greatest advocates of the time. His next great attack was on the unreformed College of Surgeons. This brought him more enemies, but he wore most of them down and did much to accelerate reforms which have made the College what it is now. His Parliamentary career was unusual. It was only at the third attempt that he carried the Finsbury Division as an independent radical. He refused to do any canvassing and his supporters paid his expenses. Thereafter he was returned as long as he was willing to stand. We owe him many legislative reforms, and not all of them in the medical field. It was his pioneer work which led to the Medical Act of 1858, still the basis of our legal position as a profession. He got power for coroners to pay for a post-mortem examination; he successfully opposed a clause in the Vaccination Act of 1840 which would have confined vaccination to Poor Law medical officers; and was largely instrumental in so altering the law as to make the operations of the "resurrectionists" unnecessary. He was trenchant in his criticisms of the conditions in lunatic asylums. As coroner for West Middlesex he conferred a new dignity and usefulness on that office, was strongly in favour of medical coroners, and was the chief figure in several important cases arising from inquests, the most outstanding being that of a soldier who died as a result of flogging. This led to its practical discontinuance.

The *Lancet* under his charge did great public work, as, for example, in the exposure of the adulteration of food, milk, and water, and legislation followed. There was, indeed, hardly any social abuse prevalent at that time which the *Lancet* did not tackle—generally with effect. The book is very good value for 2s. 6d. It would be well worth the money if it were only for the brilliant character sketches of most of the leading medical men of the time. It deserves to be read by everybody interested in how our social reforms have come about, and who is thankful to those who, in face of immense difficulties, made advances possible. Our profession may well be proud of Thomas Wakley and grateful to Dr. Brook for reminding us of him.

ALFRED COX.

SEMINOLOGY

Studien am Menschlichen Sperma. By Charles A. Jcël. (Pp. 154.) Basle: Benno Schwabe and Co. 1942.

This book provides a concise exposition of the methods employed in studying human semen. The technique closely follows the lines described in other textbooks on the subject. One original process deserves attention: a method is described for embedding the formed elements of semen in paraffin for sectioning. This allows a more thorough cytological study of the cells of spermatogenesis which are too scanty in the smear preparation. The author claims that changes in spermatogenesis—e.g., as the result of treatment—appear in these cells before the spermatozoal picture alters. If this is so the laboriousness of this method would be amply repaid. The findings of over 1,300 semen analyses and post-coital tests are evaluated, and an appendix containing excellent histological illustrations clarifies doubtful points of nomenclature.

The author's exposition is clear, and his approach to the subject entirely practical. His book is a good introduction into a comparatively unexplored field of clinical research.

A third edition of SANFORD R. GIFFORD'S *Textbook of Ophthalmology* is published by W. B. Saunders Company at 20s. It covers the elementary aspects of ophthalmology concisely and adequately. It contains rather less obsolete teaching than is usual with books of this size, as is seen in the excellent account of retinal arteriosclerosis, but it also slips up badly in its occasional adherence to obsolete teaching, as instanced in the section on the treatment of ophthalmia neonatorum.

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VACCINATION AGAINST INFLUENZA

The use of virus vaccines for protection against influenza has hitherto given either inconclusive or frankly disappointing results. Undaunted by these, the Commission on Influenza in the U.S.A. pursued endeavours in this direction in the early years of the war, and were able by the autumn of 1943 to stage a full-scale trial. A full description of this trial and its results has made a rather belated appearance in a series of 7 papers[1] which together form a massive contribution to the literature of this subject. The introductory paper by Francis gives a general account of the methods used and of their evolution. The vaccine was derived from egg allantoic fluid, and virus from this source was concentrated tenfold by adsorption on chicken erythrocytes: each dose of 1 ml. represented 2.5 ml. of allantoic fluid containing the PR8 strain, 2.5 ml. containing the Weiss strain (both of type A), and 5 ml. of the Lee strain (type B). It was preserved with formalin and phenyl mercuric nitrate, and shown to retain its potency in this condition. Of the populations studied, one half received a single dose of 1 ml. of this vaccine, while the remainder were given an injection of saline with the same two preservatives added; thus not even the sensation produced by the inoculation enabled the recipient to guess whether he belonged to the treated or to the control group. The majority of the subjects were university students in "Army Specialized Training Programme" units; the status of such a student is not quite clear, but they appear to have been housed together and subject to discipline. Regular sick parades were held, and all men diagnosed as having influenza were placed in hospital. In a considerable proportion of vaccinated and controls and in most cases of clinical influenza repeated antibody titrations were carried out, sometimes by several methods and with the use of more than one strain of virus. The virus in cases of influenza which occurred was also identified at every centre.

At each of six centres—two in New York State, and the remainder in the Universities of Minnesota, Iowa, California, and Michigan—the total number of men studied was over 1,000. Vaccination was done in November, 1943. The astonishing feature of this experiment is that influenza, proved at every centre to be due exclusively to type A virus, broke out almost immediately afterwards. In two centres the beginning of the outbreak was simultaneous with vaccination, and elsewhere the first cases occurred within a few days or up to a fortnight; only in California was there an interval of about a month before the first cases and two months before the epidemic reached its peak. From five centres the reports are unanimous in recording that vaccinated subjects had less influenza than controls: the experience of Minnesota is typical, the percentage of vaccinated men developing influenza being 2.7 and of non-vaccinated 9.06. The difference was nowhere less than 2-fold, and at two centres it was over 4-fold. In California, on the other hand, although there was some difference in favour of the vaccinated group in the frequency of influenza proved to be due to type A virus, the total cases of clinical influenza, including those not tested for virus and those in which such a test was negative, are almost identical. This series alone can be interpreted only as meaning that the vaccine was without effect.

The sole ostensible difference between California and the other centres is in the time elapsing between vaccination and the appearance of influenza. If this were the explanation it would almost condemn the method in itself, since an immunity so transitory would be of value only in the gravest emergency. That it is not the explanation is suggested both by the fact that the antibody level following vaccination remains high for months, and by observations pointing to another and almost equally disturbing reason. It has been recognized for some years that different strains of type A virus vary antigenically, and further evidence of such differences was obtained in these studies. At Michigan the correlation between serum antibody level and the frequency and severity of influenza was close when the Weiss strain was used for titrations, but the results with the PR8 strain were less conclusive. It seemed, therefore, that the Weiss strain, which was contained in the vaccine and had been isolated only six months before, was closely related to, if not identical with, that responsible for the epidemic. In California, on the other hand, serum antibody titrations were done not only with these two strains but with a third isolated during the epidemic itself. Perhaps the most striking figures emerging from these studies are the ratios between increase in titre due to infection and that produced by the vaccine: these were, using PR8 1.8, Weiss 4.1, and Olson (the current strain) 7.1. Analysis of the same data shows that according to titrations employing PR8 the antibody responses to infection and vaccination were equal, whereas in tests with the Olson strain infection caused a mean increase 3.7 times greater than that produced by vaccine. One cannot avoid the conclusion that the California outbreak was due to a virus differing antigenically from those in the vaccine to such an extent as to deprive this vaccine of almost all protective power.

It is as well that this single negative result was obtained, or those at the five other centres might have encouraged a far too optimistic outlook. It seems that the study of influenza increases yearly in complexity, and this increase keeps pace with and neutralizes the effect of every advance achieved. What limit is there to the possible subdivision of type A virus? And may not its variety account for the transient immunity produced by the attack itself? This has always been a serious stumbling-block to any belief that artificial methods can achieve worth-while immunity. We can only conclude for the time being that vaccination against influenza has not yet passed beyond the experimental stage, and that only further studies of this most laborious nature will illuminate the subject further. It may perhaps also be concluded that should a catastrophic outbreak occur, as has seemed possible at the end of this

[1] *Amer. J. Hyg.*, 1945, **42**, 1, 12, 21, 28, 45, 57, 94.

war just as after the last, a vaccine prepared from the current strain of virus should if possible be used. Whether it could be prepared in sufficient quantity soon enough is another matter.

INTERNATIONAL HEALTH ORGANIZATIONS

The charter of the United Nations, adopted by fifty Governments at San Francisco in the spring of last year, entrusted the solution of health problems in the international field to the new United Nations Organization (the word "Organization" has now been dropped from the title), and at the instance of the Brazilian and Chinese delegations it was agreed that in preparing a plan for the new international health structure methods of associating it with existing institutions should be fully considered. It is useful, therefore, to recall what official international health organizations are already in being, most of them dating from the interwar or recent war period, though two of them go back to the first decade of this century.

The organizations which are devoted wholly to public health are the International Public Health Office in Paris, the Health Organization of the League of Nations in Geneva, and the Pan-American Sanitary Bureau in Washington. The first of these, established in 1909, is designed to provide a link between the signatories of the various international health Conventions, beginning with a Convention signed at Venice in 1892 with the object of preventing cholera from reaching the Mediterranean area, right down to the International Civil Aviation Convention formulated in December, 1944, and not yet in force. The Paris office acts as an information centre and supervises the application of the Conventions. The Health Organization of the League of Nations, set up under the Covenant in 1921, is the most ambitious of all the bodies. It consists of a general advisory council, a health committee with various commissions and subcommissions, and a Health Section which forms part of the Secretariat of the League. Its work falls roughly into two parts: the first is concerned with the prevention of disease, including epidemics, and the second with the promotion of health, including the study of such factors as nutrition, housing, and physical education. The work has had a wide range, but the most important activities have been the service of epidemiological intelligence, the exchanges of health personnel between different countries, and the assistance of Governments in establishing or reorganizing their health administration. The Pan-American Sanitary Bureau in Washington, with branch offices in Central and South America, derives from a conference of twenty-one American republics in 1901–2. It is a centre for co-ordination and information in the field of public health in the Western Hemisphere, and its primary interest is in staying the spread of communicable diseases.

All these organizations are solely concerned with health functions. In addition there are others which have public health as one of their interests. The International Labour Organization, set up at Geneva after the war of 1914–18, includes in its work the study of industrial hygiene, the prevention of industrial diseases, and the protection of workers against health hazards. U.N.R.R.A., which began its work in 1943, has as one of its purposes "to aid in the prevention of pestilence and the recovery of the health of the people." The United Nations Food and Agriculture Organization, deriving from the Hot Springs Conference in 1943, seeks to raise the levels of nutrition and the standards of living everywhere. Then there are two regional bodies: the Anglo-American Caribbean Commission, established in 1942 to deal, among other matters, with the improvement of nutrition, housing, and public health; and, most recent of all, the Arab League, established in 1945 to facilitate co-operation between the Arab independent States in health questions among others. These are all official organizations. In addition there are voluntary ones such as the International Red Cross and the Rockefeller and Millbank Foundations, whose beneficence has spread far beyond national boundaries. Other important links are the international congresses, dating from the first medical congress in Paris in 1867 and the first surgical congress, also in Paris, in 1885, and again the intellectual traffic between the medical faculties of the universities of different countries.

The United Nations Information Organization (38, Russell Square, W.C.1) devotes its Information Paper No. 5 to a brief account of these bodies and a recital of the international sanitary Conventions of the last fifty years. The information is timely in view of the present assembly of the United Nations in London, when health questions may well influence some political decisions.

MODE OF ACTION OF SULPHONAMIDES

For some time after the discovery by Fildes and Woods in 1940 that *p*-aminobenzoic acid neutralizes the action of sulphonamides on bacteria it seemed that the mystery of how these compounds act had been completely solved. Further than that, the search for "antagonists" was widely pursued as a method for elucidating chemotherapeutic effect: the fact that no known naturally occurring substance antagonizes the action of penicillin is both a reason for its powerful chemotherapeutic effect and an obstacle to further understanding of how that effect is produced. But the further study of sulphonamide action has produced a more complicated picture altogether, and it seems that the Fildes-Woods theory can no longer wholly explain the ascertained facts. These complex developments are very fully reviewed by R. J. Henry,[1] whose monograph, which concludes with nearly 700 references, is one of those compilations without which few people can hope to follow the progress of present-day academic work.

The line of the argument pursued may be stated briefly as follows. It is generally agreed that sulphonamides prevent bacterial growth by inhibiting one or more enzymes. According to the Fildes-Woods theory the enzyme concerned is responsible for an anabolic reaction of which the substrate is *p*-aminobenzoic acid. Direct proof of this is lacking, and a serious difficulty in accepting this as a complete explanation is that sulphonamides are antagonized by so many substances other than *p*-aminobenzoic acid itself. These include methionine, other amino-acids, and urethane among substances of known composition, and proteins, peptone, bacterial products, and unknown elements in tissues and exudates. Another possibility is that sulphonamides inhibit oxidation-reduction enzymes, and this is an

[1] *The Mode of Action of Sulphonamides.* By Richard J. Henry. Publication of Josiah Macy Foundation, Review Series, 1944, vol. 11, No. 1, pp. 72, 698 (refs.).

explanation which Henry favours, although he emphasizes that here again actual proof must await the results of further work.

It is significant in this connexion that sulphonamides are known to depress the activity of a wide variety of living cells other than bacteria, including fungi, higher plants, protozoa, and mammalian tissues. Decreased oxygen consumption has been shown to accompany this effect in many cases. One of the most interesting of these is the action on sea-urchin eggs, because sulphanilamide inhibits the respiration and division of fertilized eggs, but does not affect respiration in the unfertilized egg except in exceedingly high concentrations. Here, therefore, is an example of a cell in which there must be two respiratory systems—one of which furnishes the energy for cell division and is inhibited by sulphanilamide, whereas the other is not. If a similar mechanism exists in bacteria the fact that oxygen consumption continues after cell division has stopped is no objection to the hypothesis that sulphonamides inhibit respiration; they may inhibit only that fraction of total respiration which provides the energy for division. These and other studies on respiration tend to class the sulphonamides with "indifferent inhibitors" such as narcotics. We have been accustomed to thinking that under the influence of sulphonamides bacteria are overcome by starvation: it is an even more attractive thought that the effect is to put them to sleep.

WORK FOR SILICOTIC MINERS

"Provision of Employment in South Wales for Persons Suspended from the Mining Industry on Account of Silicosis and Pneumoconiosis" is the title of a 6-page White Paper presented by the President of the Board of Trade to Parliament in December.[1] This embodies the findings and recommendations of a "Working Party" which the President of the Board of Trade and the Minister of Labour sent to investigate the problem. The party consisted of Mr. D. R. Grenfell, M.P., and another local M.P., two trade union leaders who are themselves silicotic, four representatives of local authorities, and three departmental members. Of the ten experts consulted six were medical officers. Silicosis and pneumoconiosis are due to the effect of dust in the lungs. *X*-ray examination reveals fibrosis in nodular form in silicosis, whereas in pneumoconiosis it appears as reticulation. Medical knowledge is incomplete, but pneumoconiosis may be accepted as the early stage along the road to silicosis; hence the importance of quickly removing suspected victims from the mines in the initial phase. Medical evidence is unanimous that if this is done the progress of the disease is arrested. Persons affected fall into two categories: (*a*) the vast majority who are capable of employment in any light industry which does not involve working in dust or fumes and does not require heavy lifting, but it is important to avoid long-distance travelling to work; (*b*) a limited number of special cases that need "sheltered" employment under special conditions. The investigators are satisfied that those in the first category can engage in ordinary light industry under normal industrial conditions, and that this class of workers, in their own interests, should not be segregated from their fellows. They advise that a small number of factories should be built by the Government in South Wales and Monmouthshire through the Trading Estate Company, Ltd., in advance of a demand from tenants in selected areas containing large numbers of disabled unemployed, and that the use of these premises should carry an obligation to employ a minimum percentage of "disabled persons" as defined by the Disabled Persons (Employment) Act, 1944. Such Government-owned factories would need to be built without delay and located at five focal points. The recommendations are set out in precise terms. They would ensure employment for men in areas where this is highly desirable and otherwise difficult to obtain; they would give an indirect but real preference to persons suspended from the mining industry; and they can be put into operation at once and administered within the framework of existing legislation. Action on the lines proposed ought to go far towards rehabilitating ex-miners in South Wales who suffer from silicosis and pneumoconiosis.

[1] H.M. Stationery Office; Cmd. 6719. 1d.

BACTERIAL DESTRUCTION OF CONCRETE

The serious corrosion of concrete sewers is by no means a new phenomenon. The production of sulphuric acid is an essential part of the process, but the reactions involved are of great complexity, and a complete explanation of the mechanism is far from easy. There has been increasing evidence that some of the sulphur bacteria are, at least in part, responsible for the damage. Bunker, in a review of the physiology and biochemistry of the sulphur bacteria,[1] states that destruction of concrete occurs in circumstances in which much hydrogen sulphide is formed by bacterial action, and suggests that this is oxidized non-biologically to sulphuric acid. Recent evidence, however, suggests that the oxidation is in part a biological process. Parker,[2] working in Melbourne, has investigated a number of cases of destruction of sewers in which decay has taken place just above the water-line, the cement of the concrete being reduced to a putty-like mass containing embedded particles of aggregate. In all cases the damage was associated with sewage containing considerable quantities of hydrogen sulphide. The rate of corrosion is peculiar in that there is an extended period, up to 2 years, during which corrosion is little apparent, then a period of very rapid destruction. Parker has isolated from the decayed concrete a number of strains of a bacillus, and attributes to it a large share of the process of oxidation to sulphuric acid. The organism, for which the somewhat fearsome name *Thiobacillus concretivorus* is proposed, is strictly autotrophic, readily converts free sulphur to sulphuric acid, but cannot utilize sulphites, sulphides, or hydrogen sulphide. It grows best at *p*H 4.0, but can grow and produce acid at any *p*H less than 6.0. All the strains are completely inhibited at *p*H 6.5. Tolerance of the bacillus to acid is remarkable, cultures of two of the strains, incubated for 80 days, producing acidity equivalent to 10% sulphuric acid, and three other strains still producing acid in a medium already containing 8% sulphuric acid. From the numbers of bacilli isolated from typical specimens of decayed concrete, and from the ability of the organism to corrode cement mortar in an atmosphere similar to that of a sewer, Parker concludes that *T. concretivorus* is responsible for the final active stage of corrosion of concrete. No explanation, however, is given of the changes which take place during the preliminary period of very slow corrosion. It is not yet clear how hydrogen sulphide is oxidized to free sulphur, which the bacillus requires for growth. Also, concrete is distinctly alkaline, and we do not know as yet by what agencies the *p*H is brought below the point at which *T. concretivorus* can take control. It is important that the whole process be understood, and it is hoped that the work will continue with a view to clearing up the outstanding points.

[1] Dept. Sci. Industr. Res., *Chem. Res.*, Spec. Rep. No. 3.
[2] *Austral. J. exp. Biol. med. Sci.*, 1945, **23**, 81, 91.

RHEUMATISM AND NEUROSIS

In recent years there has been a welcome tendency to more precise analysis of the symptoms of chronic rheumatism. It is not enough nowadays to diagnose rheumatism of the shoulder. A painful shoulder may be due to osteo-arthritis of the acromio-clavicular joint, a subacromial bursitis, prolapse of a cervical disk, fibrositis of the articular capsule of the shoulder-joint, or hysteria, and each of these will require different treatment. It is generally agreed that lumbago and sciatica are only symptomatic diagnoses, though they are real enough to the patient, and the terms fibrositis and fibrous nodule themselves have come under revision. Nevertheless, a great deal of water will have to flow under the bridges before diagnosis in terms of exact pathology will generally be feasible in the non-articular forms of rheumatism. The diagnostician who used the American Medical Association's Classified Nomenclature, in which every disease is presumed to have a local habitation and a name, will often find himself in difficulties in setting down the anatomical position and pathological nature of the lesion in a patient with non-articular rheumatism. The dilemma is stimulating, if humiliating, and few clinicians would doubt that in cases properly diagnosed as fibrositis or sciatica a local tissue change is present. Its effects may be modified by the state of the psyche, but it is not primarily psychogenic in origin. We are beginning to get a clearer picture of the nature and reference of the tissue changes as a result of the work of Copeman and Ackerman[1] on the fibrous nodule or fatty hernia of the back, F. A. Elliott[2] on the trigger areas, and Lewis and Kellgren[3] on the basic qualities of somatic pain.

It has long been known that patients with neurasthenia suffer from "rheumatic" pains. We may be forgiven for using the comprehensive term neurasthenia, if only to recall Allbutt's[4] description of the rheumatic pains and backache in this disorder. Many patients with this complaint have come under observation in the armed Forces during the war, and it is not surprising that they have at first been diagnosed as having fibrositis and treated for that. An excellent description is given by Flind and Barber,[5] who point out that the so-called rheumatism consists of indefinite pains, rarely limited to the joints or any one region of the body. There is no swelling of the joints, and there are no sharply localized fibrositic nodules or trigger areas, though the patient may react excessively to deep palpation of the muscles. Diagnosis is not difficult if the patient is considered as a whole and attention is not too closely focused on the locomotor system. There is usually a personal and family history of neurosis and morbid fears about health, and other nervous symptoms are present such as feelings of exhaustion, pain behind the eyes, tremors, dizziness, blacking out, insomnia, headaches, and dyspepsia. Several explanations have been given of the mechanism of the so-called rheumatic pains in neurasthenia. Aggressive feelings which have been inhibited may find expression in muscular tensions—the cramped muscle reflects the cramped mind. If it is assumed that the pains are conversion symptoms, their situation may be explained by a local predisposition in the shape of a subclinical fibrositis; or it may be symbolic, representing inward feelings of resistance, obstinacy, and resentment. There is a slight flavour of the hothouse about these views, and the clinician may well turn back to Allbutt with his ideas of postural fatigue and lowering of the nervous threshold. The complaint is obviously similar to the inefficiency of the respiratory musculature and the precordial pain which are characteristic of effort syndrome. The same type of patient is affected, and it is probable that experiment would show the same poor response to exercise and premature exhaustion as has been observed in effort syndrome.[6] It is misleading to include these cases under the heading of rheumatism, for the word rheumatism by derivation implies the defluxion of a morbid humour to the part—that is to say, a local tissue change. They should be diagnosed in terms of psychiatry or constitutional pathology. There is undoubtedly a psychosomatic approach to rheumatism, but it will not be made easier by confusing rheumatism with neurasthenia.

[1] *Quart. J. Med.*, 1944, **13**, 37.
[2] *Lancet*, 1944, **1**, 47.
[3] *Clin. Sci.*, 1939, **4**, 47.
[4] Allbutt, C., and Rolleston, H. D., *System of Medicine*, 1910, **8**, 727.
[5] *Quart. J. Med.*, 1945, **14**, 57.
[6] Jones, M. S., and Scarisbrick, R., *Lancet*, 1943, **2**, 331.

THE BRITISH LEGION'S WORK

The report of the British Legion for 1944–5 is issued from Cardigan House, Richmond, Surrey. Membership grew during the year, and men and women who served during the war are joining the Legion in considerable numbers. More and more it has been consulted on everything connected with rehabilitation and resettlement, not only by Government Departments concerned but by a number of voluntary organizations either directly or indirectly interested in these problems; co-operation with other bodies has been a notable feature of the year's activities. The Council views with great concern the housing situation as it affects men and women leaving the Forces. Re-establishment of family life, in the Legion's view, not only is a problem of major importance for ex-Service families themselves but also holds out the gravest possibilities for the country if neglect continues. The annual conference proclaimed its fears for a situation which might well arise from the consequences of delay and ineffectiveness in dealing with this most vital matter. Among many other branches of work the Legion's Employment Bureau has continued to function during the year, and the number of placings was 9,530. On March 21, 1945, the Queen opened the British Legion Sanatorium at Nayland. Five months before then the medical director, Dr. J. B. McDougall, was seconded to U.N.R.R.A., but the B.L. village was fortunate in having on its honorary consulting staff Dr. F. R. G. Heaf, who undertook during Dr. McDougall's absence to act as honorary consulting medical director, and during the year he frequently visited Nayland, and Preston Hall, and Douglas House, Bournemouth. An important development on the medical side of the village scheme has been the setting up of a committee of consultants composed of physicians and surgeons who advise the council of management on medical matters in the administration of the three institutions. The council puts on record its appreciation of the valuable work done by members of the profession in connexion with the various cases that have to be dealt with.

The next session of the General Medical Council will begin on Tuesday, Feb. 12, at 2 p.m., when the President, Sir Herbert Eason, will take the chair.

Dr. H. E. Magee will deliver the Milroy Lectures on Tuesday, Feb. 12, and Thursday, Feb. 14, at 5 p.m. at the Royal College of Physicians, Pall Mall East. Subject: "Application of Nutrition to Public Health—Some Lessons of the War."

MEDICAL EXPERIENCES IN SIAM

The following is an abstract of the experiences recorded by Capt. S. S. PAVILLARD, *Medical Officer of "D" Battalion of 650 prisoners of war sent from Changi, near Singapore, to Siam by the Japanese as a working party. The period covered is from April, 1942, to Aug., 1945.*

The march of 15 miles from Changi to Havelock Road, Singapore, proved very exhausting; the men carried all their kit, and had for the previous three months been on a starvation diet. Many fell out of the line of march suffering from "black-out" and heat exhaustion. On our arrival at Havelock Road Camp we found that conditions were deplorable in every respect. The complete absence of latrines was responsible for the ground being fouled and for the outbreak of bacillary dysentery. Washing and cooking facilities were totally inadequate, and the whole camp area had been used as a refuse dump by the local Asiatic community. The morning after our arrival one of the men was found to have died during the night from cardiac beriberi, which no doubt had been precipitated by the gruelling ordeal of the previous day.

Arrangements were immediately made to clean up the camp, but the men were still grossly overcrowded in the bug- and louse-infected huts. Consequently many slept in the open. The men were worked as coolies, and although the rations showed some improvement on Changi standards, this was not sufficient to prevent the widespread outbreak of deficiency diseases, particularly beriberi and pellagra. These conditions prevailed throughout our captivity, and the men lived on the threshold of avitaminosis. Any great exertion or fatigue invariably caused an outbreak of beriberi and pellagra. The men were "paid" at the rate of 10 cents a day, representing approximately 1s. 6d. per week, and out of this sum essentials such as soap had to be bought.

The most prevalent diseases were beriberi, pellagra, and bacillary and amoebic dysentery. Practically the whole camp suffered from scrotal dermatitis (B_2 deficiency). This caused great irritation and resulted in a weeping dermatitis. Diphtheria was prevalent at the time and many men contracted diphtheritic scrotums. We had brought a very limited supply of drugs from Changi, which were soon exhausted. The Japanese gave us no drugs whatever, but at our request allowed us to make purchases locally.

On Oct. 12 we left Havelock Road, and marched to Singapore Station carrying all our kit. Here we entrained in covered goods wagons—32 men to a truck, the floor area of which was about 18 ft. by 7 ft. (5.5 by 2.15 m.). There were not even the most primitive sanitary arrangements on the train, and on arrival at Seremban, our first stop after a journey lasting some 13 hours, we must have provided excellent entertainment for the local populace. This exposure of our men to ridicule was repeated at every halt on our journey through Malaya and Siam. There was a great shortage of drinking-water, and washing facilities were non-existent.

On our arrival at Ban Pong on Oct. 17 we were marched to a camp sited in a paddy field which was completely under water. This was the first opportunity I had had to hold proper sick parades. There were many cases of diarrhoea and dysentery and one case of diphtheria. The hut that went by the name of hospital was flooded to a depth of 2 ft. (61 cm.) and was grossly overcrowded, the patients lying on bamboo platforms 2 to 3 in. (5 to 7.5 cm.) above the water. The water was full of mosquito larvae and there were many cases of malaria. As a result of my sick parade 20 men were left behind when, next day, we started on our long march up-country.

Throughout our captivity everything had to be carried on our backs. Therefore our drugs were split up into small parcels and carried by volunteers. The experience of later parties proved the wisdom of this method, for in the majority of cases parties left their medical supplies at Ban Pong on the understanding that the Japs would forward them by river transport. Of course the supplies were stolen by the Japs and the parties never saw them again. We took two days to march along the made road from Ban Pong to Kamburi (some 39 kilometres). During the march many men suffered from heat exhaustion and stomach cramps due to loss of salt by sweating. Some became so exhausted that I ordered them to fall out; they were collected into groups and were later picked up by Japanese lorries. During the march the Thais gave us fruit, salt, aspirins, and quinine. The only water available was from roadside wells and could not be boiled or chlorinated. During later stages of our march through the jungle men drank from stagnant pools which were often full of mosquito larvae.

On our first night's stop and again the second night the men were in a very exhausted condition and a great number were suffering from foot blisters: my orderlies and I were dressing feet until 2 a.m. The Japanese tried to force us to march again the following day, but when I repeatedly pointed out that some 250 men were quite incapable of moving they dropped their bullying tactics and the next day we rested. In view of the physical strain which the men had undergone, I decided thoroughly to examine every one. Many complained of tightness of the chest and difficulty in breathing; and, on auscultation, tachycardia and extrasystoles were found. As a result I reported to the Japs that 150 men would still be unable to continue the march the following day. This report brought forth the usual tirade and bullying attitude; but I pointed out that any deaths would be the direct responsibility of the Jap commander, and once again he climbed down. The 150 men remained in Kamburi and rejoined us some time later at Wampo, having made the journey up-river in barges. It is of interest to note that the average age of the men was 35 years and the average time of residence in the East 11 years.

The next day we marched through flooded paddy fields before reaching the jungle. The Japs often lost the way, and this meant that several times we retraced our steps for many weary miles. At that night's stop at the village of Rajah we found cover for only 100; the remainder slept out and there was heavy rain during the night. There was no provision for feeding except a supply of uncooked rice, and an adequate supply of drinking-water was not forthcoming. We had to collect firewood and boiled the rice, which made the first meal since 9 o'clock that morning. After the usual argument we rested the next day, and when we resumed the march 7 men were left behind owing to sickness; they, too, joined us later on. This day's rest did much to restore the men's spirits, and they were able to wash themselves and their clothes for the first time since leaving Singapore.

The following day we covered 20 kilometres to the river-crossing at Tardau. The route lay through thick jungle and we used foot-paths and bullock-cart tracks. We were up to the knees in mud and many men lost the soles of their boots. This day's march was the worst we had experienced, but the men's spirits remained high. Many of the stronger men helped their comrades and carried their kit. On arrival at the river-crossing we were met by a fanatical Jap officer who, armed with a heavy bamboo stick (with which he satisfied his sadism), herded us into parties of 40 to cross the river in barges.

Conditions at Wampo Camp

A day later we arrived at Tarsau, whence we were sent down-river by barge to Wampo, some 30 kilometres away. Wampo was to be our home for the next 7 months. Our task was to build a section of railway 12 kilometres long, with a viaduct and bridge at each end. Much of the track had to be hewn out of solid rock. The camp consisted of two huts apart from Jap accommodation. Therefore some 67% of the men were forced to sleep in the open until more jungle had been cleared and other huts built. The camp eventually held 1,500 men. The food consisted of plain boiled rice three times a day; there was no tea, sugar, or salt. Many men fainted on parade and at work. "Black-outs" were very common, and occurred when one stood up quickly after stooping or sitting. Gastro-intestinal disorders were on the increase, as was malaria. We managed to obtain two tents, into which we crowded 50 of the worst sick in order to protect them from the rain. We were unable to obtain prophylactic quinine and had the greatest difficulty in getting it for specific treatment. The Japs eventually supplied 9 gr. (0.5 g.) per day for five days as a full course; consequently relapses were frequent.

About a week after our arrival at Wampo the first death occurred. The man was a lance-corporal (?) of the 2nd Gordon Highlanders, and died of acute bacillary and, I suspect, amoebic dysentery followed by a perforated bowel.

On Oct. 28 Capt. Richardson, R.A.M.C., reported a case of appendix abscess. The man's temperature and pulse were rising rapidly, and it was considered necessary to operate and drain. We had of course no operating room, but constructed a bamboo table in the M.I. room. We had practically no surgical instruments at all (I had been unable to acquire any in Singapore). In fact, we had only three pairs of artery forceps, one pair of scissors (rusty), a few surgical needles, and some catgut. Worst of all, we had no knife. I decided to use a cut-throat razor, and I must admit that it was one of the sharpest instruments I have ever employed. As an anaesthetic we used chloroform. Before the start of the operation the Jap M.O. arrived from Tarsau, and I asked him if he would assist me or give the anaesthetic. His answer was a silly grin accompanied by the remark that he would just look on. Pte. Riley, R.A.M.C., administered the anaesthetic while Capt. Richardson assisted. The abscess was located and drained.

The camp was now taking shape, and we had built a hospital to accommodate 100 men; we had in addition a dysentery wing holding 50. Jungle-clearing progressed, and the hut accommodation increased daily. The sanitary arrangements rapidly improved, and this did much to reduce the incidence of dysentery. We were also one of the first camps to have meat, which we bought locally from the Thais. This amount was small, but was privately supplemented with lizards and snakes. These were quite appetizing, and python steaks tasted rather like fishy chicken. Iguanas were also good, but difficult to catch.

As already stated we were 1,500 strong, and after 7 months of hard manual labour we had lost only 15 men. Three of these deaths

were due to drowning. Other and less fortunate camps were at this time losing anything from 60 to 120 men per month. In due course I was allowed to set off down-river with the Jap camp commandant and succeeded in buying $800 worth of drugs, including 100 kilogrammes of peanuts. Prices were very high: 1 tablet of sulphapyridine cost $1 (in three years it rose to $35), and emetine cost $12 per grain (65 mg.), rising in three years to $100. The arrival of these drugs did much to boost morale. The camp was now finished and parties started clearing jungle for the railway.

Diseases prevalent at Wampo

A month after our arrival at Wampo the most common diseases were: malaria (daily on the increase), beriberi (neuritic and oedematous), tropical ulcers, amoebic dysentery (bacillary dysentery had shown marked decrease), diphtheria, pellagra (early signs—i.e., stomatitis, glossitis, and skin rash). Among these were some interesting clinical cases, but owing to lack of paper it was impossible to keep notes. We had not enough specific drugs to treat all cases; therefore these had to be withheld until the patient's condition was desperate. It was often a very difficult decision to know when, and to whom, to give specific drugs, as so many cases were in need of them. However, by cutting down the recognized dosage it was often possible to tide a patient over the acute phase of his disease, though convalescence was usually prolonged.

In amoebic dysentery it was found that 2 gr. (0.13 g.) of emetine would convert an acute E.H. to the more chronic stage of E.H. cysts. This often brought about a cessation of blood and mucus and a rapid improvement in the patient's health. We had no microscope at Wampo, and diagnosis depended on clinical findings.

The diphtheria patients often developed pharyngeal paralysis, and whenever they swallowed any fluid it regurgitated up the nose. I cannot help feeling that there was mixed infection with Vincent's angina, and as I had at the time some N.A.B. a few patients were given 0.45 g. intravenously, with remarkable results; for the membrane disappeared and temperature dropped to normal in a very short period. Yet had a case been only Vincent's angina one would not have expected pharyngeal paralysis to develop; but in most cases, whether they received N.A.B. or not, it did. The Japs would give us no antidiphtheritic serum. In spite of that out of 20 diphtheria cases we lost only 2.

The work on the cliff face was proceeding slowly and the Japs brought in a further 2,000 P.O.W.s. This marked the beginning of what was called "the speedo period." Everything was done at the double; the weekly half-day was abolished, and the men had no chance to wash or air their clothes. Scabies, ringworm, and other skin conditions were rife; the huts became a living mass of bugs and lice. Tropical typhus, beriberi, pellagra, malaria, dysenteries, and tropical ulcers were all on the increase. The hospital was full, and sick personnel had to work as orderlies. The Japs now started paying officers $20 a month, half of which went towards buying extra food for the hospital—eggs, etc. The men, who were paid 10 to 20 cents a day according to rank, also contributed a proportion of their money. On my original trip to Kamburi I had bought some sacks of rice-polishings, and on our advice the Japs eventually included these in the rations. We were able to give each man 1/4 pint (14.2 c.cm.) daily, and there was a marked decrease in the incidence of beriberi.

Outbreak of Cholera

We started up-country at the end of April, 1943, "D" Bn. leaving last. After marching 40 kilometres we arrived at our next camp, Tonchan South, and here we first encountered cholera. Information was received that it had broken out at Takanum, some 100 kilometres further up. Full cholera precautions were immediately taken and lectures given, so that when the infection started, as it did on June 8, the men were well acquainted with all its manifestations and there was no panic. I am glad to be able to say that, although "D" Bn. was at different times in three of the worst cholera areas, we lost only 7 men. Considering that some battalions lost up to 50% of their strength, I cannot help feeling that many contracted the disease through sheer ignorance of elementary hygienic principles. Not only was this apparent with cholera, but with dysentery, malaria, etc., the average O.R.'s sense of hygiene was very poor. I was fortunate in having with me in "D" Bn. educated men—lawyers, chartered accountants, and business men—who made up 70% of our strength, and they could be trusted to carry out advice given.

We found that the camp at Tonchan South was grossly overcrowded, and men were sleeping in leaky tents. Sanitary arrangements were totally inadequate, and parties were still arriving. In all there were 3,000 P.O.W.s and about 2,000 Asiatic labourers in an area of less than half a square mile (1.3 sq. km.) Soon after our arrival the Jap camp commandant (S/Sgt. Hirumatz) asked me why there was so much sickness. I urged him to let us have a larger sanitary squad, as we were allowed only one sanitary orderly per 500 men. I also warned him of the danger of cholera breaking out, particularly as the coolie labour force washed in the only stream at a point above that at which we were able to draw our water. He would do nothing about it, and blamed the men for contracting diseases, saying that they did not wear shirts at night (the majority had none), but wore G-strings. Three days later Hirumatz sent for me, and to my joy was in the throes of a malarial rigor. I passed the obvious comment, but he saw no humour in the situation and wanted to be treated. I may add that except at Tarsau there was no Japanese medical officer at any camp, and consequently we had to treat Japs and Koreans. To have refused would merely have brought serious repercussions on our own sick. Only very seldom did the Japs contribute small amounts of their very inferior drugs.

Before leaving Wampo I had asked for anticholera vaccine and had been refused. However, on April 7 I walked to Tarsau and succeeded in getting some. On the following day, back at Tonchan South, I was asked to see a case, and it was the perfect textbook example. This case was reported at once to the Jap commandant, who ordered us to move the man to Tarsau. We argued that such a move would only help to spread the disease. He threatened us, but, fortunately for the men of Tarsau, three more cases were diagnosed within an hour, and Hirumatz, by now thoroughly frightened, sent for the Jap M.O. from Tarsau. On his arrival the M.O. agreed with us, and we made a small clearing in the jungle, where we pitched the one (leaky) tent available. The men were taken there on improvised stretchers (a rice sack slung on two bamboo poles). By night we had 10 cases; some had died. We applied for more tents, larger parties for clearing and grave-digging, but all our requests were refused. The camp commandant said that nothing could be done, and the men must be allowed to die. We were therefore forced to take tents from fit men (leaving them in the open) and make up grave-digging parties with officers and the sick. Deaths were occurring at such a rate that we had to dig pits within 30 feet (9.14 m.) of the tents, having too few men to clear jungle.

The coolies were dying like flies, and many fled only to die in the jungle. Our working parties were constantly finding and burying the bodies while going to and from work. The Japs moved the coolie cholera tent next to ours; these coolies had no doctors or orderlies, and were allowed neither food nor water. Their cries for water were pitiful to hear. However, our orderlies passed both food and water to them without difficulty. The Jap guards were so terror-stricken as to be useless. Three times a day a Jap orderly, with two of our sick men, went to the coolie tent and ordered the removal of the dead and dying. These were dumped into the pit, both dead and alive, along with our dead. The pit was then lightly covered with earth, and the stench of putrefaction was terrible.

Some six weeks before the outbreak I had constructed, as a precaution, a small plant for distilling water for intravenous salines. It was a very primitive affair, the condenser being a coiled rubber tube inside a hollow bamboo in which cold water was circulated. The boiler was a 4-gallon kerosene can. Unfortunately it exploded one day, scalding the operator; but it was soon replaced. Within 24 hours of the outbreak we were able to give intravenous salines. The plant was producing 40 pints (22·7 l.) daily, and eventually double that figure. The giving bottle was a jam-jar connected to a needle by a rubber tube. It was almost always necessary to cut down to the vein to insert the needle, as the vein was completely collapsed. We had no local analgesic to inject around the skin before cutting, but fortunately most of the men were insensitive to pain. In addition to salines patients were given potassium permangate 3 gr. (0.2 g.) wrapped in a cigarette paper, and swallowed every 1/4-hour. Selected cases were given sulphapyridine with what appeared to be satisfactory results.

Conditions Up-country

On July 1, 1943, 550 men were ordered up to the dreaded Kayu No. 3 camp, where they were to work on a cutting 90 ft. (27.4 m.) deep through solid rock. This place was known as Hell-fire Corner. Conditions in the Kayu area were truly appalling; at the river camp there were some 500 living skeletons barely capable of movement. They were awaiting evacuation to Tarsau, and were all suffering from the usual beriberi, malaria, dysentery, pellagra, and tropical ulcers. During the previous three months there had been 100 deaths each month. Our camp was to be in this Kayu 3 area, and sanitary conditions there were a nightmare. We cleared the camp area in torrential rain and erected our leaky tents.

It will be indicative of conditions to outline the course of the stream from which we drew water for all purposes. At its head it ran through a camp of 500 men of "H" Force; they had already lost 220 men from cholera. It then ran through a coolie camp where also there was cholera. From here it ran along the side of a track and was used as a watering-place for elephants. It then entered the original Kayu 3 Camp, containing 500 men; 35 had been lost here owing to cholera. Their cholera compound was on the opposite side of the stream to the camp, therefore anyone leaving the compound for the camp had to walk through the stream in heavily contaminated boots. The Japanese had strictly and vindictively forbidden the construction of a bridge. Three days later one of our cooks who was washing sweet potatoes in the stream absent-mindedly

chewed a piece; he developed cholera in the morning and was dead in the evening.

We were in the Kayu area for three weeks, during which time we had 7 cholera cases, of which 4 recovered. It is not surprising that after this period, when men went to work at 8 a.m. and returned at 3 o'clock the following morning, we had 250 heavy sick out of our total of 550. Another party of 500 also had 250 heavy sick, and this party moved into Kayu 1, where a hospital and doctors were available but no drugs. The "fit" men of "D" and "F" Bns. were moved up to Hintock for further work, and I went with the sick to Tonchan Main Camp, whence I hoped to evacuate the worst cases to Tarsau Base Hospital. I myself was at the time suffering from amoebic dysentery; the last emetine had been used on an acute case some weeks before.

It was now that Hirumatz repeated the behaviour which we had already suffered from at Tonchan South. It was his habit to parade the sick in all kinds of weather and at any time of the day or night. He was under the delusion that he could find fit men among the sick. He frequently accused men of malingering and administered terrible beatings.

On Sept. 3, 1943, I moved north to Kinsayok with 50 of my 250 heavy sick who had been refused evacuation down-river. A few days before leaving I received a consignment of drugs from the Swiss consul via Mr. Pong. The money to buy these drugs in the black market in Bangkok was subscribed by the European residents, among whom were many Germans and Italians. Conditions were better than anything we had known since Wampo, but they were marred by Sgt. Okado, the Jap medical sergeant. This man, known as Dr. Death, repeatedly beat up the sick and also the doctors, whom he said were responsible for the numbers of sick.

On Jan. 14, 1944, a party of 500 men, mostly "B" and "D" and "F" Bns., was sent to a small camp on the river-bank in order to haul barges through the rapids. I went with them as M.O. The work was easy, but we had practically 100% of malaria. After six weeks these men were sent down to Tarsau and I was ordered back to Kinsayok. On my arrival there I found the camp overrun by rats, many of which were dying from what the Japs said was bubonic plague. The whole camp was turned out to kill rats, and in six weeks we destroyed 10,000. Typhus had now started and we had many cases.

On April 1 I went down with tropical typhus, and have never felt so ill; there were several other cases, and we were moved under an improvised awning. The heat at this time was intolerable—in fact, so bad that clinical thermometers registered 104° F. throughout the day. The only way to ascertain a patient's temperature was to take it first thing in the morning or last thing at night. For 17 days I had fever, and this was followed by malaria. I had lost so much weight that I was forced to sell my fountain-pen to the Thais, for which I got $25, and used it to buy eggs. Throughout our captivity almost everyone was forced at one time or another to sell personal valuables in order to supplement rations. A great deal of Japanese equipment (changkols, shovels, axe-heads, etc.) was also sold. The risk was heavy, as penalties were exacted with animal ferocity.

In May and June large parties of heavy sick arrived from Tarsau and Chungkai, bringing, fortunately, a number of doctors with them. On June 6 we received the first consignment of food and drugs from America. Much of the food and a large proportion of the drugs were appropriated by the Japs; even so, what we received was a godsend. As an indication of the scale of Japanese thieving, we received one parcel for every 6½ men, although we knew that one food parcel per man had arrived.

Month after month of the appalling conditions, during which time men were not allowed to report sick at an early stage of their diseases, rendered their ultimate cure difficult or impossible even if specific drugs were available. When men were eventually allowed to report sick the clinical picture was usually complicated by the fact that the patients were suffering from several diseases at the same time. Furthermore, they had lost interest in things around them, and the will to live. I have on many occasions argued and reasoned with the unfortunate men, but they were exhausted beyond the limits of human endurance. Even to-day we are still fighting to save some of the pitiful human wrecks who have survived the last three years.

At Christmas we were allowed a pantomime. It was a great show, and cheered everyone up. We heard that officers and men were to be separated; the men felt this keenly, for we had worked side by side for the past 3 years, and the officers had always stood between the Japs and their men. On one occasion Major Clark in the course of an argument with the Japs was struck heavily and his eardrum was ruptured; this injury gave him much trouble.

On May 12, 1945, we started our journey to Pratchia, 110 kilometres the other side of Bangkok. We travelled as far as Non Pladock in open trucks in very heavy rain. At Non Pladock, as usual, no arrangements had been made. We spent the night in two semi-collapsed huts which had previously been used by coolie labour. The huts were indescribably filthy.

On the 14th, after crossing the river by barges, we waited four hours in blistering sun (most men had no shirts) for the Bangkok train to arrive. The river water was too dirty to drink, so we chlorinated water from adjacent paddy fields. At 1 p.m. a meal was brought to us from a near-by P.O.W. camp. This was to be our only meal until we reached Bangkok Docks the next morning.

At 6 p.m. we arrived at Bangkok goods station, which had been heavily blasted by our bombers. In a few sheds left standing were Jap fighting troops on their way to Burma. The whole area was full of bombs, ammunition, mortars, etc. We embarked on barges at 10 o'clock and made a 7-hour trip down the river to Bangkok Docks and prayed there would not be an air raid. This trip was in keeping with all journeys organized by the Japs—extremely uncomfortable; there were 50 men per small barge. We arrived at about dawn and had at once to unload the junk which the Japs seem to find indispensable on any move (wood, petrol, some rice, etc.). We finished this job by 9 o'clock and were allowed 20 minutes for a meal which was provided. Immediately afterwards the men were split into working parties and sent to construct emplacements and defences of all kinds in the dock area and in Bangkok. I had 70 sick by this time, but the Japs would allow only 50, so I had to pick out the 50 worst cases.

Early in July we received a small consignment of American Red Cross drugs (our second and last during our captivity). After the armistice had been signed we discovered that the Japs had been withholding 35 cases of drugs and hundreds of blankets.

Conclusion

At long last the signs that the end was near became evident. On Aug. 16 we noticed Japanese troops burning papers, and in the afternoon there was a parade of their camp staff. When the parade was over some Korean guards signalled across the barbed wire the information that the war was finished.

As an indication of the incidence of sickness among P.O.W.s it is of interest to note that during the period of our captivity I saw an average of 120 cases a day; while at Kayu this figure rose to 500 a day.

Our evacuation to Bangkok was delayed by the arrival of 450 P.O.W.s who had been in contact with smallpox. These men had been marching since June and had covered 600 kilometres.

On Sept. 8 Lady Louis Mountbatten visited the camp and shook most of us by the hand. She was the first white woman we had seen for 3½ years.

HOSPITAL SERVICES: FUTURE PATTERN

THE MIDLANDS AND YORKSHIRE

In 1941 the then Minister of Health initiated a survey of hospital services, dividing England and Wales into ten areas for the purpose, and appointing, himself in some areas and the Nuffield Provincial Hospitals Trust in others, persons experienced in the clinical or administrative work of hospitals as surveying officers. The reports and recommendations of these officers are now being issued. Each report makes a large Blue-Book. The teams of surveyors approached their task in different ways, some dealing with each hospital of the area in turn, others with districts and groups of hospitals, or with the different branches of hospital service. The result is a Domesday survey of a scale and completeness never before attempted. The survey of the London Region was reviewed in the *British Medical Journal* of July 14, 1945 (p. 56). Below is a summary of the surveys for the West and East Midlands and Yorkshire.*

WEST MIDLANDS AREA

This survey was undertaken by Mr. J. B. Hunter, F.R.C.S., Dr. R. Veitch Clark, and Sir Ernest Hart. The area covered includes the geographical counties of Stafford, Warwick, Shropshire, Worcester, Hereford, and Northampton, with Birmingham, with its million population, dominating the larger part.

Desire for Co-ordination

The surveyors have been impressed in practically every part of the region with the desire for co-operation between the rate-supported and the voluntary hospitals. Any difficulties have been "largely psychological on both sides." Action most

* H.M. Stationery Office: West Midlands Area, 5s. net; Sheffield and East Midlands, 7s. 6d. net; Yorkshire, 5s. net.

likely to be profitable would be: (*a*) division of functions between the two hospitals in each locality so that both undertook general medicine and surgery and allocated special departments between themselves, instead of both running smaller units; and (*b*) attachment of a single group of specialists to the staffs of both hospitals. Cottage hospitals are considered to be a necessary part of any organized hospital plan, but they should not assume the functions of a general hospital; they are peripheral units in any district served by a general hospital at the centre.

In each hospital district there should be a range of consultants adequately covering general medicine and surgery and obstetrics and gynaecology, as well as the principal specialties. At present the number of consultants is limited by the economics of the area. If there is no living to be made by consulting work then "full" specialists are not available for the staff of the hospital, and committees of management have to get along with general practitioners of the immediate neighbourhood.

"In the past the tendency has been for the general practitioner gradually to drift into surgery, or whatever branch of medicine he is most interested in, and to do this as an offshoot from his general practice; he may be entirely self-taught and without proper training for the particular branch he chooses. . . . The surveyors are of opinion that this is not the right procedure. They feel that hospital authorities should be in a position to pay a sufficient annual sum to enable consultants of approved training and ability to perform the work, and that such specialists should not have to be dependent on their private practice to enable them to live."

Having gone as far as this in areas concerning which a subsidy is found necessary to secure adequate specialist service, they feel bound to go on to affirm that all consultants should be paid for their hospital work.

The need for a complete change of outlook in the care of the chronic sick has impressed them. They recommend that no patient should be admitted directly to a "chronic" hospital; he should in the first instance be admitted to a general hospital for a thorough assessment of his case. Accommodation for the chronic sick should be planned on lines which will enable the patients not only to receive good medical and nursing care but to enjoy life so far as their faculties permit.

Birmingham and District

The following hospital districts for the West Midlands area are proposed:

Birmingham	Shrewsbury
Bromsgrove	Stafford
Coventry	Stoke
Dudley	Stourbridge
Hereford	Walsall
Kidderminster	Warwick and Leamington
Northampton	West Bromwich
Nuneaton	Wolverhampton
Rugby	Worcester

In Birmingham there is need for a new general hospital with out-patient department to serve as a district hospital for the northern and eastern boundaries of the city. Birmingham General Hospital, in its unrivalled position, should extend and improve its out-patient department and emergency services. The new Queen Elizabeth Hospital should be completed as planned to provide more general and surgical beds. Selly Oak should have the major out-patient department for the southern parts of the city.

It is felt that in any scheme for Warwickshire Coventry should play a larger part and serve as a major hospital centre for the districts in the north-east; with it the district hospitals of Nuneaton and Rugby should be associated. Two general hospitals are suggested, of not more than 700 "acute" beds, to serve Coventry and the surrounding zone, with the same specialist staff available to both. The staffing of the general and special departments of Coventry hospitals is considered to need strengthening. A main district hospital should be situated at Leamington or Warwick and linked with Birmingham for certain specialist needs. A new hospital at Sutton Coldfield to serve the residential fringe of Warwickshire east of Birmingham is also considered desirable.

A general hospital in Worcester is recommended for the service of the central and southern parts of that county. Worcester Royal (within whose walls the British Medical Association was founded) would naturally fill the position if strengthened in staff and in certain physical resources. A general hospital is also needed in Bromsgrove to serve the north-east of the county; the "hutted" All Saints Hospital should meet the immediate need, and with certain modifications might meet the requirements of a long-term policy. Kidderminster General Hospital, strengthened in its medical staff and eventually rebuilt away from its present restricted site, would serve a district, and Corbett Hospital, Stourbridge, is well placed to serve a population of 120,000.

The Black Country

North Staffordshire was found to be practically self-contained in its general hospital provision. The two large general hospitals at Stoke are both well sited, and the co-ordination of their work and that of the orthopaedic hospital is for the moment more important than extensions, but in time such extensions must be made, and the work of these hospitals might well be supplemented by a recovery hospital outside. In Mid-Staffordshire Burton-on-Trent is a natural centre for a population of nearly 100,000, but there will have to be an increase of beds. Stafford should be the centre of a hospital district of some 180,000 population, but here again the general hospital would need extension to perhaps 400 beds. In South Staffordshire, Wolverhampton, Walsall, West Bromwich, and Dudley each possess one or more general hospitals serving their town and the surrounding area. These four towns are considered to be natural centres at which to locate general hospitals. Smethwick would be served by St. Chad's, Birmingham, and Hallam, West Bromwich.

The Rural Midlands

Shrewsbury is the natural centre for the hospital district of Shropshire. The Salop Royal Infirmary, the County Hospital, and the Eye, Ear, and Throat Hospital, with a total of 450 beds, will need to provide the hospital services for the district until substantial rebuilding can be undertaken, and it is thought that it should be possible to secure some of the advantages of a united hospital right away by appointing to the three a common medical staff. Wolverhampton would be the most convenient centre to provide for Shropshire most of the consultant and other services not available in Shrewsbury, and Shrewsbury should look to Birmingham for its university connexions and for the rarer forms of specialist service.

The main task in Herefordshire is to secure a co-ordinated general hospital service. One general hospital of economic size would serve the area. At present there are two in Hereford—one voluntary and the other local authority—with no tradition of co-ordination. The surveyors hold that there is no room in Herefordshire for two such hospitals, though the total number of beds is required. The clinical departments of both institutions should be regarded as complementary and the staffs built up as one team. This would be facilitated by an allocation of functions between the two hospitals. Hereford could look most conveniently to Birmingham and its medical school and associated general and special hospitals for scientific inspiration, general consultative help, and certain less frequent specialist services.

Northampton, in the view of the surveyors, should be the centre of an organized hospital district for its county, with the general hospital there associated more closely with the one at Kettering. The Northampton hospitals would need to be linked to a university medical centre for stimulus, exchange of medical personnel, and certain services such as thoracic and neurosurgery and some forms of radiotherapy. Hitherto Northamptonshire patients needing treatment at a major centre have usually gone to London, and the attraction of London with its numerous medical centres and large numbers of consultants is bound to continue. Nevertheless, London is overloaded, and it is desirable to relieve it of all those areas which can be advantageously linked up with other university centres. Therefore it is proposed that Northamptonshire should be associated with Oxford, notwithstanding difficult railway connexions.

SHEFFIELD AND EAST MIDLANDS AREA

The survey in this area was in the hands of Prof. L. G. Parsons, Dr. G. E. Godber, and Mr. S. Clayton Fryers. The last-named did not take part in the survey of Derbyshire and

Yorkshire because of the unwillingness of the local authorities in those areas to accept a lay surveyor. The area includes seven counties and part of an eighth, comprising a population of close on four millions. There are two teaching general hospitals, both of them in Sheffield, and other hospitals, larger than the teaching ones, which are recognized in their districts as consultative centres.

General Criticisms

A marked tendency to over-development of certain aspects of work is noted, especially lavish expenditure on equipment in competition with neighbouring hospitals.

"Elaborate operating theatres are commonly found in small cottage hospitals, even in those where operations are relatively infrequent and sometimes may be performed by unskilled hands. We have seen complicated and highly expensive equipment for the treatment of severe fractures duplicated in hospitals the work of which would be better restricted to simpler forms of treatment, leaving the patient with a slightly longer journey to a better-equipped hospital where complicated treatment can be undertaken under expert supervision. *X*-ray apparatus is usually found in cottage hospitals, although many have no visiting radiologist or even radiographer."

The effect of contributory schemes on the normal flow of patients is mentioned. In some areas the surveyors were told that non-contributors might have less chance of admission to the only available suitable hospital than contributors whose need was less; also that some contributory schemes associated with particular hospitals are reluctant to allow a patient to go to another hospital, even though he might benefit by the special treatment obtainable there, because such treatment would involve payment from contributory scheme funds. On staffing the comment is made that there seems to be a tendency for municipal hospitals to seek to stand alone and to provide much of their medical service by means of whole-time staffs, thereby necessarily reducing the opportunities for developing experience in special lines of treatment. Hospitals for infectious diseases vary exceedingly, from excellently designed ones at Sheffield and Leicester to "the worst parodies of hospitals which need not be named."

Comment is made on the lack of co-ordination between authorities, even within the same administrative county:

"An arbitrary line on the map often determines whether a patient shall have access to a well-staffed relatively modern hospital in a natural hospital centre or be sent some distance away to an unsatisfactory institution, whether the case be one of infectious disease, tuberculosis, maternity, or some chronic illness."

The bad results of strict adherence to local government boundaries are nowhere better exemplified than in Leicestershire and Nottinghamshire, where the respective counties and county boroughs have each erected good sanatoria, each pair being only five miles apart, instead of combining to produce more efficient and larger hospital units. The same lack of co-ordination exists in general hospital work. In some areas the voluntary hospitals are accustomed to transfer chronic cases to municipal hospitals and to have little other relation with them. This position of dumping-ground is hotly resented by municipal hospitals, especially when they have developed into well-equipped acute hospitals; but in justice to the voluntary hospitals it must be said that in many instances until comparatively recently they alone were equipped to deal with the acute sick. In no area is there a general pooling of facilities. Even the sharing of consultant staffs varies greatly in degree.

Inadequate Consultative Service

Another striking point brought out in the survey is the inadequate numbers of available consultants. In Sheffield the number of consultants is too small for the town itself. Nottingham, Leicester, Derby, and Doncaster have long been recognized as consultant centres and, especially in surgery, have staffs of considerable size, but in medicine the number of consultants has been relatively less developed. New members of staffs of the larger hospitals are often recruited from general practitioners, and some are still in general practice. Lincoln and Grimsby are in an intermediate stage in the development from general practice to consultant staff; in some other areas, such as Barnsley, Stamford, Mansfield, Chesterfield, and Boston, only one man is engaged solely in consultant work. Certain specialties have been slow in developing. Only one gynaecologist who restricts his practice to that specialty is to be found in the whole of Lincolnshire. Paediatrics is relatively inadequately covered, even in Sheffield. Dermatology has not been largely developed apart from general medicine. Neurosurgery has been slow, thoracic surgery has developed very little, and plastic surgery is not organized at all.

The surveyors express themselves dissatisfied "with the position which permits a medical superintendent of a municipal general hospital to try to combine the work of administrator and clinician of consultant standing. The clinician of consultant standing at the municipal hospital should have complete responsibility for the treatment of his patients, whether he is a whole-time employee of the authority owning the hospital or a visiting consultant giving part of his time to the work."

They are equally emphatic about general practitioner surgeons:

"Although there are general practitioners who are really first-class surgeons, the existence of general practitioner surgeons as a class has grave drawbacks, and the hospital services should be planned to eliminate the need for them. The evolution of surgery has reached the point where it is impossible for a man to maintain a sufficiently high standard of technique unless he is constantly employing it: just as general practice now requires a breadth of experience which the surgeon lacks."

The general practitioner surgeon is not confined to voluntary hospitals: he is also found in public assistance institutions. In some local authority hospitals the surgeon will tackle anything regardless of inexperience. The surveyors add that these comments are not intended to be derogatory of the general practitioner but only of the system.

General Shortage of Beds

The surveyors are satisfied that there is a general shortage of beds in the area. There are exceptions in certain special branches, as, for example, in Sheffield, where there are sufficient beds for infectious diseases, but for the type of case requiring the facilities of a modern general hospital, whether for treatment or investigation, there is not enough accommodation anywhere. The deficiency is greatest in Doncaster, the West Riding, Lincolnshire, and Derbyshire. The total number of beds in the area is just over 20,000, and it is calculated that 12,000 more are needed, including 5,800 more "acute" beds.

The principles for the organization of hospital services which the surveyors lay down may be briefly summarized as follows:

(1) The whole region for general hospital services to be served by area consultant services based upon hospital centres.

(2) Each hospital centre to have locally resident consultants; smaller associated centres to have part-time visiting consultants.

(3) Functional union of and common staff for all the hospitals in the centre.

(4) Cottage hospitals to be associated with neighbouring hospital centres and to be provided with nursing facilities for the type of case which would normally remain in the charge of the patient's own general practitioner, but no provision to be made for surgical work save in exceptional conditions when transfer is impossible.

(5) Special centres, preferably at medical schools, to provide the more highly specialized services, and their staffs to be available for consultation.

The Sheffield Centre

The surveyors consider that there should be a functional union of hospitals in Sheffield, with complete pooling of resources, for the benefit of the city and the district around. The special hospitals should have a right to call in consultants of all types from the general. The union of the Royal Infirmary and the Royal Hospital should become effective even while the present separate buildings remain. The City Hospital should make use of a greater range of consultants from the area consultant staff. The most urgent need in Sheffield is for adequate sanatorium accommodation for tuberculosis; a new sanatorium should form part of the Sheffield centre. The Jessop Hospital should be developed to approximately 300 beds, providing the principal gynaecological consultant centre for the area. Rotherham, notwithstanding its proximity to Sheffield, should be developed as a hospital centre, and the same is true of Barnsley and Doncaster. In Barnsley the service of local resident consultants should be provided, but some of the specialists should

also be attached to the Sheffield centre. Doncaster should be self-sufficient for ordinary specialties, but cannot afford to "export." Chesterfield should be associated with Sheffield and not with Derby, and itself be developed on similar lines to Barnsley and Rotherham. Derby must provide a hospital centre of considerable size. The first phase must again be a functional union of the various hospitals.

Nottingham, Lincoln, Leicester

Nottingham is an old-established consultant centre, but the number of consultants here again is much too small. "At least a 50% increase of staff all round is required." The number of beds available in Nottingham is more nearly adequate than in some other areas, but there is acute need for more maternity accommodation. The conception of one major hospital including both paediatric and gynaecological beds on the City Hospital site is attractive.

Lincolnshire is the least organized area in this region. The first requirement is the establishment in Lincoln of an adequate service of consultants, who must be subsidized because there will not be enough private practice to maintain the numbers. There will be work for two or three men in all the usual specialties. Grimsby, where existing services are handicapped by lack of beds, should also be a centre of great importance. A relatively inadequate centre is Boston, around which there is a considerable rural population. "If building for general hospital purposes is justifiable anywhere in the region immediately after the war it is at Boston."

Finally, Leicester, where there is a consultative centre of high local reputation and long history. It is proposed that there should be a major hospital centre at Leicester, with a satellite centre at Loughborough. There are not enough beds available at Leicester for the present population, and still fewer for the county, but the number is more nearly sufficient than in other large centres with which the surveyors have had to deal. The consultant staff of the Royal Infirmary should be increased by 50% as soon as possible, and there should be pooling of resources to give the consultants clinical responsibility for patients at the municipal hospitals.

YORKSHIRE AREA

The survey of the Yorkshire area was undertaken by Sir Herbert Eason, Dr. R. Veitch Clark, and Mr. W. H. Harper. The surveyors were informed that the municipal authorities at Bradford declined to be associated with the survey, and therefore they did not visit the Bradford municipal hospitals. The population of the area is nearly 3,000,000. Leeds is the only university town. The surveyors recommended five hospital divisions—Leeds, Bradford, Harrogate, York, and Hull and East Riding. They assess hospital need according to the following standards: Beds for acute cases 4 per 1,000 population; for chronic cases 2 per 1,000; for maternity cases 0.5 per 1,000; for tuberculosis 1 per 1,000; for infectious diseases 1 per 1,000. On this basis the deficiency of beds in the various centres is as follows:

Bradford	981	Hull and East Riding	1,310
Dewsbury	625	Leeds	1,459
Halifax	515	Wakefield	346
Harrogate	184	York	1,154
Huddersfield	478		

Postgraduate School Proposed

It is also the view of the surveyors that the number of trained and experienced specialists in the region is inadequate for the population to be served. The number of consultants and specialists not engaged in general practice is 124, and the number engaged in general practice 272. They consider it essential that a postgraduate school for the training of specialists should be established in this region, and recommend that at the earliest possible date the Royal Infirmary, Bradford, should become such a school and be in this respect a part of the medical faculty of Leeds University. Leeds should confine itself to undergraduate teaching.

On the question of co-operation between rate-supported and voluntary hospitals the surveyors urge the distribution between the hospitals of the area of the provision of special services which require highly trained staff and special and often expensive equipment. The impersonal issue of the allocation of special units should be first discussed, in their opinion, so as to secure a broader and more temperate outlook on both sides. The provision of one special unit in a group of hospitals instead of special units in each hospital, all dealing with the same subject, is clearly not only economical in equipment and staffing but provides a much better service for the patients, and such an arrangement will make an easier approach to staffing problems later on. A useful example of an organization suitable for such co-operation is the Leeds Joint Hospitals Advisory Committee set up in 1936.

On the subject of good hospital provision the surveyors remark that the siting of hospitals in the more densely populated parts of the region has impressed them as a matter of very definite importance. They feel it to be to the advantage of the public that hospitals should not be established anew in fully built-up areas. New hospitals should be sited either on the periphery of towns or in the adjoining country. They further suggest that of thirty-nine infectious diseases hospitals in Yorkshire eighteen are of so little use that they might be dispensed with entirely. There is no reason, in their opinion, why any fever hospital should not serve the area measured by a radius of about fifteen miles. They add that no fever hospital should be without a resident medical officer. Nineteen smallpox hospitals in the area, most of which have been empty for fifteen or twenty years, are also recommended for elimination.

Better Planning for the Chronic Sick

Like the surveyors in other regions, Sir Herbert Eason and his colleagues urge that no person should be sent direct to a hospital for the chronic sick. Admission should be in the first place to a general hospital for the acute sick. They also make certain recommendations for the better planning of hospitals for the chronic sick. As for the staffing of such hospitals, while normal medical needs may be met by the routine visits of a local general practitioner, every such hospital should have directly on its staff at least a specialist physician and an orthopaedic surgeon visiting at reasonably frequent intervals. There should also be provision for social care.

There are twenty-one cottage hospitals in the region, and the surveyors were pleased and satisfied to find that these actually did fill the gap between domestic medical practice and the work of the larger hospitals. It is their experience that the cottage hospital does in practice confine itself to this sphere of activity, and they consider that it is difficult to over-estimate its value in the hospital scheme.

They recommend the setting up of children's hospitals in rural surroundings for Leeds, Bradford, Hull and East Riding, and York and Scarborough; also that there should be, wherever possible, one central orthopaedic department or hospital attached to the "key" or divisional general hospital and two long-stay hospitals in the open country working in close relationship with it. For general orthopaedic, fracture, and short-stay cases the Leeds area will require about 200 beds, Bradford 100 to 125, and Huddersfield, Halifax, and York 40 to 45 each. For the long-stay hospitals it is estimated that the beds required would be one in 5,000 of the population.

Short-term and Long-term Policy

The larger part of this survey is occupied with detailed comments on over 100 hospitals, beginning with the General Infirmary at Leeds, of which it is said that the practice of medicine and surgery is of the high standard characteristic of a university teaching hospital, but that if the medical school is to keep pace with the development of medicine and surgery very large extensions will be required to provide modern accommodation for certain specialties. The surveyors were not favourably impressed with the Leeds Maternity Hospital; the general effect produced was "rather depressing." They found certain of the arrangements unsatisfactory, but their comments imply no reflection on the standard of professional work, either of the medical or of the nursing staff. At St. James's Hospital, Leeds, the largest of the municipal hospitals, they found the health authority "very much alive to what a modern hospital should be."

In dealing with sanatoria they lay down the following principles:

(1) Institutional treatment of the tuberculous should form an integral part of the general hospital scheme, and sanatoria should be linked with key divisional hospitals.

(2) Sanatoria should also be linked to the dispensary and domiciliary service of the tuberculosis scheme.

(3) Where practicable it would be advantageous that tuberculosis dispensaries be placed in general hospitals.

(4) Non-pulmonary forms of tuberculosis should be dealt with as part of the sections of orthopaedics and of paediatrics.

(5) The major surgery of tuberculosis should be done at a thoracic surgery unit.

Finally, the surveyors indicate what in their view should be the short-term policy and the long-term policy for each of the divisions. In the Hull and East Riding Division, for example, under the short-term policy, the Royal Infirmary, the Children's Hospital, the Women's Hospital, and the municipal general hospitals should become component parts of one hospital centre, without necessarily losing their autonomy, and the emergency hospitals at Beverley and Driffield should be maintained in their present activity for the service of both the city and the county until the full hospital scheme has been put into operation. Under the long-term policy it is suggested that to the three hospitals mentioned there should be added a fourth, situated somewhere in the county, to meet the deficiency in bed accommodation. In York, again, under the short-term policy, the formation of a key hospital centre by the existing county and city hospitals, together with the emergency hospital at Nayburn, is recommended; the long-term policy would necessitate the erection of an additional general hospital.

The surveys of the North-Western area, South Wales and Monmouthshire, and Berkshire, Buckinghamshire, and Oxfordshire will be reviewed in a later issue.

THE MEDICAL DEFENCE UNION

SIXTY YEARS OF SERVICE

The Medical Defence Union is celebrating its Diamond Jubilee, and by a luncheon on Jan. 15 it recalled its history and honoured the memory of the men who assured to the profession a service which has come to be recognized as essential to medical practice. The Union was incorporated on Oct. 23, 1885, by a group of laymen under the leadership of C. F. Rideal, to provide doctors with an insurance against the risk of prosecution for malpraxis, to meet attacks by libel or slander, and to suppress unfair competition by unregistered persons. On May 6, 1886, a Midlands Branch was formed at Birmingham under the chairmanship of the well-known surgeon, Lawson Tait. Tait recognized the potential value of the Union to the profession and worked hard to set it on a firm foundation. He took the chair at the first annual meeting held in London and was there elected first president. A council composed of medical men was appointed, and early in 1888 new Articles of Association were adopted and the Union became an entirely medical organization.

Progress from Small Beginnings

During the first decade internal dissension and external rivalry made progress very slow. Nevertheless by the end of the century the main lines of current and future development had been defined and the Medical Defence Union had established itself as a permanent feature of British medical organization. The membership, which at the first annual meeting totalled 544, had grown to 4,604, and the reserve fund amounted to £7,637. The next 20 years saw a progressive rise of membership, at first somewhat slow, with a slight setback during the war of 1914–18; and after 1920, when the membership was 9,032 and the available funds £19,876, the Union made rapid headway, outstripping in a few years all its previous records. The membership to-day approaches 30,000, and the available funds exceed £150,000. This remarkable growth and consolidation could have been secured only by the adoption of a policy and the pursuance of a procedure that met with acceptance from practitioners in all branches of the profession.

The content of medical defence has broadened with the extension of medical practice into new spheres of activity, and the Council of the Union finds more and more ways whereby it may serve its members. In addition to the individual medical defence of members involved in or threatened with legal actions, the assistance of members worried by medico-legal difficulties, both great and small, in the course of their profession, and arbitration in disputes between members, the Union has developed the collective defence of the profession in the medico-legal sphere. Under this heading come the suppression of practice by unregistered persons, the reporting to the General Medical Council of practitioners conducting themselves in a manner alleged to be infamous in a professional sense, the interpretation of Acts of Parliament and official regulations, and advice on the medico-legal aspects of new methods and techniques in medical practice.

Of the men whose work for the M.D.U. and the profession are being remembered at the Diamond Jubilee, a few only can be mentioned: C. F. Rideal, originator of the idea of medical defence; Lawson Tait, first president; the line of secretaries—Leslie Phillips, A. G. Bateman, James Neal, Robert Forbes—and Campbell Pope and Victor Jaynes, who gave honorary service; the early treasurers—Granville Bantock, J. A. Masters, and F. J. Wethered; the solicitor, W. E. Hempson, and his son, Oswald Hempson: and among those who served very long as members of Council, M. Hallwright, M. Arden Messiter, and W. S. A. Griffith, the sole survivor of the pioneers of medical defence. It is fitting to mention also Victor Horsley, Charles Ballance, Herbert Waterhouse, and Eric Pearce Gould, who gave of their best in promoting the success of the M.D.U.

At the luncheon party last week in London the president, Mr. St. J. D. Buxton, F.R.C.S., took the chair, and gave a brief survey of the earlier years of the Union in acknowledging a toast proposed by Sir Alfred Webb-Johnson, P.R.C.S., who had paid tribute to the valuable work done during 60 years, not only for individual members but for the profession as a whole. With the approach of a new concept of civilian medical practice in the form of a National Health Service wider fields of activity may lie open in which the help of the Council will be sought by members engaging in that service who need personal protection against attacks and guidance in the operation of multifarious regulations.

PHYSICAL EDUCATION IN INDUSTRY

At the annual general meeting of the Research Board for the Correlation of Medical Science and Physical Education on Jan. 16, under the chairmanship of Dr. Frank Howitt, a report, *Medical Science and Physical Education in Industry*, was approved for publication.* It is complementary to the three-part report on medical science and physical education in their relation to maternity and child welfare, education, and the Services published in 1945. This year's report covers certain aspects in industry, including nutrition and diet; job analysis, job specification, vocational selection, vocational guidance; recreation; occupational health services; rehabilitation; young persons in industry; women in industry.

Research Board's Recommendations

A number of recommendations are made by the Board, among which the following stand out as of special importance:

More co-ordination should be effected between organizations making a special study of, and advising on, job analysis, job specification, vocational selection, vocational guidance; and the advice of these bodies should be made more readily available to all types of firms.

The number of works medical officers and welfare workers should be increased. The co-operation of physical medicine specialists should be sought. Firms should also employ experts in physical education.

Suitable leaders of physical recreation should be trained. It is certain that with further training a number of ex-Service instructors would be suitable for this work. Although no guarantee of employment is expected, the appropriate Government Departments should encourage suitable firms to employ well-trained men and women.

An industrial health service should be planned as an integral part of the National Health Service; it should be a co-operative undertaking with full support from both management and workers. The establishment of polyclinics within industry should be the subject of experiment. The education of management and workpeople on health problems in industry should be regarded as fundamental to any improvement in the health of our industrial population.

Medical officers and personnel officers should have facilities for undertaking research. University departments and other bodies should assist such men and women with their research problems.

Great stress is laid on accident prevention in sections of the report dealing with occupational health services and young people in industry; and in the section on rehabilitation the need for co-operation between all concerned with the treatment and

* Obtainable from the Ling Physical Education Association, Hamilton House, Bidborough Street, London, W.C.2. Price 2s.

resettlement of substandard and injured men and women is strongly advised. The report reads:

"In any scheme of rehabilitation surgeons, physicians, psychiatrists, nurses, physiotherapists, physical educationists, education officers, almoners, welfare supervisors, Ministry officials, training centre authorities and instructors, trades union officials, employers, and the patients themselves should work together as a team. Closer liaison should be established between authorities responsible for medical rehabilitation and industrial resettlement."

The Research Board recommends plans for the adaptation of Service rehabilitation and physical development centres for civilian purposes, and emphasizes the need for establishing juvenile and industrial physical development centres on the lines found so successful in the Army physical development centres. It is very anxious that Service men and women doctors and physical training specialists should continue their work in research and treatment under civil conditions, and hopes that, where young people are concerned, the introduction of county colleges, made compulsory under the Education Act, may not be unduly delayed, and that these colleges should form a focal point for recreational and other activities. In the interests of the health of young workers the factory law relating to the hours of employment should be strictly enforced. Constant reiteration is made of the need for research and for closer liaison between industry, youth services, and voluntary organizations.

WAR MEMORIAL FOR NURSES AND MIDWIVES

A fund is being launched to provide a war memorial to the nurses and midwives of the British Empire who have given their lives in the war. The primary object of the fund, which is to be known as the British Empire Nurses War Memorial Fund, is to furnish a war memorial chapel in Westminster Abbey, which shall house a Roll of Honour of the dead. For this purpose £5,000 is required. A chapel has been allocated by the Dean and Chapter of the Abbey, and it is anticipated that the sum will be easily reached and passed, and that a substantial balance will remain to be used for the benefit of the nursing and midwifery professions in a way to be decided later. £50,000 is the minimum hoped for.

A distinguished Council of medical, nursing, and lay members has been gathered to serve the Fund, and it is hoped it will include representatives of the Dominions, the Colonies, and India. Medicine is represented on the Council by the Presidents of the Royal Colleges of Physicians, Surgeons, and Obstetricians, and the Chairman of the Central Midwives Board. Nursing representatives include the Matrons-in-Chief of the three Nursing Services of the Crown (the Royal Navy, Army, and Air Force), the Matron-in-Chief of Red Cross and St. John, the Chief Nursing Officers of the Ministries of Health and of Labour and the Department of Health for Scotland, and the Chairman of the General Nursing Council (who is also Matron of the Middlesex Hospital and the Matron-Elect of Guy's Hospital, London), and the Registrar of the General Nursing Council for Scotland.

The hon. secretary of the Fund is Miss J. Elise Gordon, M.A., Editor of the *Nursing Mirror*. The address is British Empire Nurses War Memorial Fund, Dorset House, Stamford Street, London, S.E.1, to which all gifts should be sent. Lloyds Bank are the Trustees, and all administrative expenses are being paid by the *Nursing Mirror*.

The Medical Missionary College at Vellore, South India, has recently been recognized as a constituent college of the University of Madras and is now able to train women students for the M.B., B.S. degree of that university. The College was founded in 1918 by the pioneer medical missionary of the American Arcot Mission (Dr. Ida S. Scudder) as a medical school for women. In 1938 Dr. T. S. S. Rujan, the Minister of Health, abolished the lower diploma (L.M.P.) and thus the existence of the school was threatened. After long negotiation the council of the school entered into a co-operative venture with the Christian Medical Association of India, Burma, and Ceylon to establish at Vellore a United Christian Medical College for men and women of the M.B., B.S. grade. The first step in this direction was taken when the University of Madras recognized the Vellore Medical School as a college teaching for the pre-registration and pre-clinical subjects in 1942. In 1944 Dr. R. G. Cochrane was asked to become principal in order to assist in the final steps towards recognition for the full M.B., B.S. degree. The Vice-Chancellor of the University visited the college last November, and as a result of his report the Syndicate of the University gave recognition for the clinical subjects. A further University Commission will visit in 1947-8 to report on the progress of the college. It is hoped that by then it will be possible to seek permission from the University for the admission of men students.

Nova et Vetera

"THE POOR MAN'S PHYSICIAN"

There have always been, and there still are, a large number of persons who prefer to indulge in self-medication rather than entrust themselves to the care of the regular medical practitioner. For the guidance of such persons a great mass of literature has been available since the fashion was set by the publication of the Regimen of Health of the School of Salerno (*Regimen Sanitatis Salernitanum*) in mediaeval times. This work was printed in many editions, as also was Andrew Boorde's *Breviary of Health*, which latter is said to be the first original medical work, by a medical man, to be published in England. Such books as these were, no doubt, invaluable in country districts where no skilled aid was available, and this may explain why they were often sponsored by the Laird in Scotland and by the Lord of the Manor in England.

In 1712 there was published in Edinburgh a little book entitled *The Poor Man's Physician, or the Receits of the Famous John Moncrief of Tippermalloch*. The author was Sir John Moncrief, who owned the estate of Tippermalloch in Perthshire and who was 85 years of age when his book was published. Like so many other works of its kind, it is a mere list of diseases with a large choice of remedies. There is no description of the cause or nature of the malady, such as is found in Boorde's *Breviary*. Some of the methods of treatment have a modern flavour and may be explained in the light of modern science, such as the use of dried blood for haemorrhage and of watercress for scurvy, but for the most part the "receits" or prescriptions are of empiric nature and the medicaments are often disagreeable or even disgusting. A considerable choice, however, is offered to the patient who may dislike heroic or unpleasant doses.

For example, in "Bleeding of the Nose" the following are a few of the means of treatment suggested:

2. The Blood burnt, powdered, and blown up the nose.
4. Snails in their shells, bruised and put in.
5. Juice of Swine's Dung put in.
21. Sprinkle Hare's Hair on Vinegar and put them up in the nose. This is the best of anything known; it hath not an equal.
22. Blood of a Partridge or Dove wholesomely repelleth bleeding.

For "the Colick," of which no exact definition is given, there are advised:

1. The Hoofs of living creatures are singularly good being drunk.
2. The Heart of a Lark, bound to the Thigh, is excellent against colick.

"Stone in the Kidneys or Dolor Nephriticus" is to be treated by

1. A cataplasm to the Ureters, made of Onions fryed with Hog's grease.
2. Whey drunk in summer is best to hinder breeding of the Stone.

A curious nomenclature is occasionally found in this book, the terms used being those employed in certain country districts to this day. For example, "Defluxion of the Windpipe or Wesand"—that is, tracheitis or bronchitis—is to be treated by "A Gargarism of the Juice of Barberries or of Mallow."

Another strange term is still applied to pharyngitis in some parts of Scotland by the patient who announces that "the pap of the halse has fallen down," meaning that his uvula is inflamed and elongated. This diagnosis appears in *The Poor Man's Physician*, where we read: "If the Pap of the Halse be overlax, first dry it with Decoction of Prune leaves or of Comfrey. Then divide an egg in two halves, after it has been well boiled, and apply one half to the Crown of the Head."

The advice of Tippermalloch is full of such nonsense and is of purely empiric quality. It has none of the sound precept to be found in later popular works of the eighteenth century, such as the Rev. John Wesley's *Primitive Physick* and Dr. William Buchan's *Domestic Medicine*, both of which had an enormous circulation.

DOUGLAS GUTHRIE.

Correspondence

Mitral Regurgitation

SIR,—It is accepted that mitral insufficiency is associated with stretching of the mitral ring, as, for instance, in the failing hypertensive heart. But there is a considerable body of opinion which denies the existence of mitral regurgitation as caused by rheumatic infection. A further stage in this argument is to state that the systolic murmur loudest at the apex and conducted into the axilla is actually a physical sign of mitral stenosis. This assumption is not only contrary to logic but is disproved by cases similar to that here described. That this curious heresy is being taught is clear from the statements of examination candidates.

A young man of 23 was admitted to St. Bartholomew's Hospital with fever and joint pains. There was a previous history of rheumatic fever at the age of 19, for which he was kept in bed for two months and was convalescent for a further month. On examination, fever was present up to 102° F., the pulse and respiration rates averaged 110 and 30, respectively. There was clinical evidence of some left ventricular enlargement. A systolic murmur was present, loudest at the apex and conducted into the axilla, blowing in character. No presystolic or diastolic murmurs were audible in any position of the patient. There was no clubbing of the fingers, and no petechiae were seen. The blood culture yielded a pure growth of *Streptococcus viridans* on two separate occasions. He was treated with penicillin 250,000 units daily by intramuscular injection for a month but eventually died. The post-mortem examination of the heart showed a pericardium distended with serous fluid; the heart was pale, bulky, and both ventricles were enlarged. The tricuspid and pulmonary valves were normal. The mitral valve was dilated and admitted three fingers. Both cusps showed evidence of chronic thickening. Vegetations were present on the posterior cusp. The whole of the left auricle showed some scarring under the endocardium above the posterior cusp. There would therefore seem to be no doubt that mitral regurgitation due to rheumatism was present, without stenosis, and associated with the classical mitral systolic murmur.

This confirms the opinion of Samuel A. Levine in similar cases. He states in his book *Clinical Heart Disease* (W. B. Saunders Company, 1936, p. 53):

"Only occasionally have we an opportunity of examining the valve before stenosis develops—i.e., if subacute bacterial endocarditis becomes superimposed on mitral insufficiency. Then we see that the past history of rheumatism and the moderately loud systolic murmur indicated a true rheumatic mitral endocarditis, producing a regurgitation but no stenosis of the valve; for the pathological examination will show both the old rheumatic and the recent bacterial lesions. The conclusion from the above is that although the diagnosis of organic mitral insufficiency should be made with caution, it is a condition that actually exists, especially in young rheumatic individuals."

The view that mitral regurgitation as such does not occur without mitral stenosis is presumably founded upon post-mortem evidence. But this does not take account of the difference in mortality rate according to the presence or absence of mitral stenosis. We do not deny that the common cold or that chicken-pox exists on the grounds that we do not demonstrate them in the post-mortem room. There is an identical reason why we should not deny the presence of mitral regurgitation. The legitimate assumption is that this condition is not fatal, and it can also be assumed that, in the course of time, stenosis will develop in most cases of regurgitation. But it is inaccurate and illogical to describe the presence of the systolic murmur as evidence of mitral stenosis. By systole is meant ventricular systole, and ventricular systole can only produce a murmur of regurgitation so far as the mitral ring is concerned. Inaccuracy in verbal statement can only engender loose thought. This apical systolic murmur is evidence that mitral insufficiency is at the moment present, which in future is likely to develop into mitral stenosis.—I am, etc.,

London, W.1. GEOFFREY BOURNE.

Regeneration after Sympathectomy

SIR,—I was surprised to find in the authoritative account by Prof. Paterson Ross (Jan. 5, p. 1) the statement: "The sympathetic denervation following a well-planned and correctly executed operation is permanent." Much experimental work on animals has shown that the sympathetic nerve fibres possess uncanny powers of regeneration, being able to find their way through barriers of muscle back to their original distribution (Lee, 1929). Simmons and Sheehan (1939) showed conclusively the return of vasoconstrictor activity in the ulnar nerve in many cases of cervico-thoracic sympathetic section, after a post-operative period of several months of complete absence of such activity. They concluded that the return was due to regeneration. Smithwick (1940) has also admitted that regeneration occurs frequently, in spite of "well-planned and correctly executed operations."

In a recent study, by modern methods, of the late results of 48 upper limb and 38 lower limb sympathetic sections in Prof. Telford's neurovascular clinic at the Manchester Royal Infirmary, details of which will be published later, regeneration has been found to be the rule rather than the exception, and only 7, all lower, out of the 86 limbs showed no return of sympathetic activity. The extent of the returned activity varied from zero up to complete, but in the great majority of cases was only moderate. On the whole the clinical results in the cases of Raynaud's disease were sufficiently good, as regards the reduction of pain and disability, to make operation well worth while.—I am, etc.,

Manchester. H. A. HAXTON.

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Ocular Signs in the Prisoner of War from the Far East

SIR,—Major G. C. Dansey-Browning and Capt. W. M. Rich (Jan. 5, p. 20) describe ocular signs in a group of prisoners of war returned from the Far East. This condition has been seen by many of us during the past six months, and I am entirely in agreement with their observations, but not with their conclusions. I have now seen this ocular condition in prisoners returned from Rangoon, Singapore, Hong Kong, and Java, including both Indian and British, and some of the cases I have seen are probably included in their paper.

These prisoners show an interesting syndrome of which the ocular signs appear to be a constant feature, but there is commonly bilateral nerve deafness, of varying degree, with a spinal-cord syndrome. The latter is usually a picture of posterior column dysfunction (but occasionally with pyramidal signs), the legs being affected more than the arms. In at least two cases the syndrome has been further complicated by intellectual deterioration. This curious condition was discussed in some detail by Dr. Spillane and myself at the meeting of the Neurological Section of the Royal Society of Medicine held in November, 1945, and has been fully described by Spillane and Scott (*Lancet*, 1945, **2**, 261).

That this syndrome is due to a dietary deficiency seems almost certain, but it seems equally certain that it has nothing whatever to do with vitamin B_1. It is very doubtful whether it has anything to do with B_2, and certainly, in some of my cases, the syndrome has existed throughout its course with no evidence of beriberi or pellagra. At the same time, scrutiny of the diet on which this picture develops suggests that the deficiency is probably in the B group of vitamins, though a deficiency of vitamin A has not yet been excluded. It seems probable that in the past the ocular signs have frequently been noted in people suffering from dietetic deficiency, and, because they have also had the classic signs of beriberi or pellagra, the failing vision has been ascribed to the same common factor; but in most of these cases the diet is deficient in practically all vitamins.

I have little doubt that, as Dansey-Browning and Rich say, some of their cases did in fact suffer from beriberi, but I would suggest that the beriberi was a coexisting deficiency picture. They are probably quite correct in thinking that the failure of vision is an irreversible process, and this has now become an important problem as the number of affected ex-prisoners in this country is probably running into hundreds, if not thousands. Although agreeing that the lesion underlying the visual failure lies in the optic nerve, I do not like the term "retrobulbar neuritis," as there is less than no proof that this is an inflammatory condition.—I am, etc.,

Leeds. HUGH G. GARLAND.

Investigations of Remedies

SIR,—The penultimate paragraph in Dr. G. H. du Boulay's analysis of 39 cases treated with penicillin cream of low concentration (Jan. 12, p. 50) prompts me to draw attention to the uselessness of analyses the basis of which is the application of a multiple compound to a pathological condition, and the inference, if the condition improves, that the improvement is due to any one particular content of the multiple compound. No mention is made in this analysis of controls—i.e., identical treatment in all respects, ointment, washing, etc., of similar conditions, with the deletion of the remedy whose action is being studied. This method of investigation constitutes a general principle which is much too frequently omitted in reports of investigations purporting to evaluate remedies, and unless it is adopted the general "lack of faith" will, quite rightly, continue.—I am, etc.,

Leeds. C. G. KAY SHARP.

Lymphangitis Mesenterialis

SIR,—Reading Mr. Ian Aird's article on this subject (Nov. 17, 1945) I could not help feeling disappointed or rather sad. I quote: "Non-specific mesenteric lymphadenitis has found no general acceptance, etc." Alas! this seems to be true. Since about twenty years ago, when, on the basis of a clinical and surgical experience of many years, I first described in detail the clinico-pathological features of non-specific acute and chronic lymphangitis mesenterialis as a new, hitherto practically unknown,* but nevertheless very characteristic disease, I have tried in my articles written in many languages, in my lectures to students and postgraduates, in my papers at international professional meetings, etc., to convince the medical profession of the practical importance of this disease. I particularly emphasized the fact that a safe diagnosis can be clinically established, especially in chronic cases. Moreover, up to the present time I thought that I had been successful in my efforts. Medical practitioners in Central Europe, in France, in this country, in India, and even in China, where I have recently been working, were able clinically to establish the correct diagnosis and to admit cases for operation. But, as Mr. Aird rightly says, nothing can be found in the textbooks. In the past few years I have not published any more papers on this subject, because I was actually afraid of becoming a bore with my lympangitis mesenterialis. Some members of the medical profession even did me the honour of naming it "Pribram's disease." But this of course is of little importance (hypocrisy compels me to say).

However, the first feeling of disappointment quickly yielded to full appreciation when I continued to read the description and detailed statement contained in Mr. Aird's paper, with which I fully agree. But I take the opportunity of adding a few points from my personal experience which might be of interest to the reader. I have frequently been asked why I call the disease lymphangitis mesenterialis. The answer is that the whole lymphatic system of the abdominal region is often generally affected, including, for instance, the complicated lymphatic system of the liver. Lymphadenitis mesenterialis is only one easily recognized part of the whole pathological feature. I have devoted years of special study to this liver lymphangitis, which I named lymphangitis hepatica. All relevant details will be given in my book on the hepato-biliary diseases, which I hope will soon appear in print.

I have always emphasized the point that the classical mesenteric or abdominal lymphangitis is not due to a local intestinal infection and direct propagation. It represents a general infection, with the tonsils as the most frequent way of entry. Its localization in the ileo-caecal region is intimately associated with what I have called the "lymphangitic form of appendicitis." In this form the infection does not start in the mucosa, but spreads throughout the subserous lymphatic spaces. This form frequently shows an epidemic-like appearance—a puzzling fact unless one realizes that it is a blood-borne infection, in most cases following upon tonsillitis. The connexion with tonsillitis is also an outstanding feature in lymphangitis mesenterialis, in both its acute and chronic forms. The tendency to recurrent attacks after a flaring up of chronic tonsillitis constitutes a great diagnostic help when inquiring into the patient's history.

The "navel colic" of children (a term used by the old authors) is nothing other than lymphangitis mesenterialis, the pain around the navel being caused by acute swelling of the mesenteric glands. But this affection is not confined to children, for I have observed it in persons up to 25 years of age. I fully agree with Mr. Aird that it predominates in the male sex. It is rarely observed in females—a fact which has some pathological reasons and significance.

The acute form is characterized by a considerably high rate of mortality. Patients are usually operated on for acute appendicitis. They are apt to die on the third or fourth day with symptoms of "abdominal sepsis," a term sometimes applied in old textbooks to such cases. The term is quite correct. The condition is actually an abdominal sepsis and not peritonitis in the usual sense, as is observed after rupture of an abdominal viscus.

In a great many cases microscopical and bacteriological examination of the inflamed glands was carried out by myself and my assistants. The microscopical findings show oedema, hyperplasia to the extent of the so-called "sinus catarrh." Suppuration is rare. Bacteriological examination revealed streptococci in a few instances and more rarely staphylococci. But the percentage of positive findings was so low that I doubt whether a purely bacteriological point of view can give a satisfactory explanation of the pathology of the disease. I have good reason to believe that in a hypersensitive lymphatic system in young male subjects allergic conditions also play a part. Although I must leave the details of this matter for another communication, I may here point out that Fisher, my co-workers, and I myself have succeeded in producing similar pathological conditions in guinea-pigs sensitized with pig serum.

The chronic form is characterized by the tendency to recurrent attacks. When questioned the patients very often reveal the important fact that the abdominal pain followed a flaring up of a chronic tonsillitis. In some cases a very severe cold or an attack of influenza culminated in so-called "abdominal influenza." In other words, these recurrent attacks of pain are definitely connected with an infection of the upper respiratory tract, in both time and aetiology.

With regard to treatment, as the diagnosis in acute cases can rarely be made with certainty except when the appendix has already been removed, laparotomy is the safest procedure. Indications are always given in the acute cases which appear under the alarming symptoms of an acute abdomen. In recurrent attacks of chronic forms three measures have to be considered and have proved satisfactory: (1) tonsillectomy, (2) protein therapy, (3) *x*-ray treatment.—I am, etc.,

London, S.W.1. B. O. C. PRIBRAM.

* In 1920 Wilensky (*Med. Rec.*) reported shortly three cases, one of which has, however, proved to be of a tuberculous nature. Anyway this author emphasizes the existence of a non-specific acute mesenteric lymphadenitis.

Spinal Analgesia

SIR,—I cannot allow Dr. N. Beattie's comments (Jan. 5, p. 31) to pass unanswered. He points out that I do not mention spinal analgesia in discussing the anaesthetics used in my series of appendicitis cases. The reason for this is that I only very rarely use spinal analgesia for appendicectomy, and then only when there are definite indications, such as respiratory trouble. In the ordinary case of acute suppurative appendicitis I feel that it is quite unnecessary to use an anaesthetic which lasts for over an hour when the operation can be done in 15 or 20 minutes. In the very ill cases which I mentioned in my article I am certain that a spinal analgesic would have prejudiced the patients' chance of recovery. In these cases I found that a very quick laparotomy under nitrous oxide and ether was by far the least "shocking" method.

I cannot agree with him that I have been working at a disadvantage because 80% of my anaesthetics were given by house-surgeons. Since the beginning of 1944 I have had no professional anaesthetist at my hospital and nearly all my anaesthetics have been given by my house-surgeons or resident surgical officer, only the spinal analgesics and certain of the local infiltrations being done by myself. From the beginning of 1944 until the middle of 1945—that is to say, the time during which I did a large part of the series of cases published—a

total of 3,518 anaesthetics were given at the hospital. Of these, 39 were chloroform, 401 gas and oxygen, 601 gas, oxygen, and ether, and 1,951 open ether. There were 108 spinals and 418 local infiltrations or regional blocks. Dr. Beattie must not consider that we have not been discriminative about our anaesthetics because they were given by house-surgeons. Each case is studied before operation in order that the proper anaesthetic may be chosen. It is my belief (if I may open an old controversy) that the surgeon rather than the anaesthetist is the person who should decide which anaesthetic should be given; and, personally, I have found it much easier to deal with house-surgeons than with the professional anaesthetist. Dr. Beattie will also note from the above figures that I have no animosity against spinal analgesia, although I do not use it in appendicitis cases. Unlike him, I generally use heavy percaine, and have had no complaints of post-operative headache. Using this drug, it is possible by suitable posture to make the analgesia very selective, so that a low or unilateral block may be got, thus avoiding a dangerous fall of blood pressure in a very elderly individual. I invariably use spinal analgesia for resection of the colon or rectum, and for Smith-Petersen operations.

I feel that the professional anaesthetist does not make sufficient use of local analgesia. There are few emergency operations which cannot be carried out by this means, and I have found it particularly useful in abdominal surgery, where complete abdominal analgesia and relaxation can be obtained by the paravertebral intercostal block, with or without splanchnic infiltration. I have found that partial gastrectomy in particular can be readily done in this way with the minimal amount of shock. I have also found it extremely valuable when doing a Smith-Petersen pin operation in an elderly individual, a patient aged 88 being recently done in this way and making an uninterrupted recovery.

Finally, I may point out that I have found my lack of a professional anaesthetist to be a relatively small disadvantage, and the best tribute I can pay to the quality of my house-surgeons is to state that during the eighteen-months period in question there was not one anaesthetic collapse in the 3,518 anaesthetics given.—I am, etc.,

Greenock. A. LYALL.

SIR,—In reply to the letters of Drs. Helen B. Alcock and H. W. Loftus Dale (Dec. 8, 1945, pp. 818, 819) I should like briefly to make the following points:

1. *Risks.*—I am of the opinion that these have been grossly exaggerated. Of course, there is a risk in using any anaesthetic, particularly in the wrong patient. In my experience, however, such risks did not manifest themselves as often as one is made to believe. Dr. Dale may be interested to know that I started to use heavy nupercaine in obstetrics only 3½ years ago, with the mere theoretical knowledge of this "dangerous form of anaesthesia." I would certainly have commenced its use earlier had I not been deterred by the adverse criticisms in the literature levelled at spinal analgesia in obstetrics as a whole. That an alarming drop in blood pressure in cases of abdominal distension *often* occurs is contrary to my experience. Theoretically one should expect such an occurrence, but practically it is rarely met with. During the past 3½ years we have employed spinal analgesia, using heavy nupercaine, in 660 obstetrical cases (190 Caesarean sections and 470 vaginal deliveries) and in 840 gynaecological operations. During this time only six cases of so-called "alarming drop in blood pressure" have occurred, without a single fatality directly due to the spinal analgesia. Surely Dr. Alcock will not wish to abandon all forms of analgesia in obstetrics because of the possible risks entailed? I would be very interested to know how many such alarming experiences were encountered in the personal experience of the above-named, using heavy nupercaine.

2. *Premedication.*—The detrimental effects of premedication on newborn infants have surely been exaggerated. The harsh armchair criticisms that omnopon gr. 1/3 (22 mg.), scopolamine gr. 1/300 (0.2 mg.) may produce severe foetal apnoea, and even stillbirths, are surely unfounded. I have never seen such an occurrence following Caesarean section. Almost every infant has cried lustily immediately on extraction. As house-surgeon at St. Mary's Hospital, Manchester, I had ample opportunity to witness many cases of Caesarean section performed under local anaesthesia, with premedication of morphine gr. 1/4 (16 mg.) and hyoscine gr. 1/150 (0.4 mg.). I am sure the members of the staff at St. Mary's will bear me out when I say that no case of foetal apnoea occurred, let alone stillbirths. In operative vaginal delivery, however, the ill effects of sedation on the infant are well known and, of course, I deprecate its use. Dr. Alcock misquoted me in suggesting that I employed premedication of omnopon and scopolamine for vaginal deliveries. On the other hand, is not foetal apnoea frequently encountered after "minimal ether or trilene, or under cyclopropane O_2," particularly in cases of foetal distress? Indeed, I would go so far as to say that even a minimal of general anaesthetic is sufficient to "put the finishing touches" to an infant in severe distress.

3. *Inhibiting Action.*—The inhibiting action of spinal analgesia on the longitudinal muscle fibres, while increasing that of the circular fibres of the uterus, would theoretically contraindicate the use of such analgesia for vaginal delivery. I think I can reassure Dr. Dale that in practice few difficulties are encountered in intrapelvic manipulations, complications in the third stage being rare. A striking feature of spinal analgesia is the absence of shock following destructive and difficult forceps operations.

4. *Suitability of the Method.*—That the majority of patients prefer to be asleep during the operation is again contrary to my experience. Not only have the women been unaware of delivery under a spinal analgesia, but have been delighted to hear the cry of the child immediately on extraction. Women who have had repeated operations have asked for spinal analgesia a second or even a third time!

5. *Headache.*—I will agree that this was a serious complication early on in my series of cases. Improvements in technique and after-care have, however, led to such a striking diminution in its incidence that only two cases of severe headache have occurred in the last 266 cases. Surely a spinal headache is not too big a price to pay for the striking absence of the "burst abdomen," bad chests in the presence of painful abdominal wounds, and the like.

Finally I would like to reiterate my earlier conclusion, that spinal analgesia using heavy nupercaine is safe and reliable in operative obstetrics in selected cases of advanced pregnancy, and would make a plea for a further extended trial of this form of analgesia.—I am, etc.,

Salford. LOUIS RESNICK.

SIR,—Dr. N. Beattie's excellent letter raises some points of interest to surgeons and anaesthetists. There is no doubt that spinal analgesia minimizes the difficulties of the surgeon working inside the abdomen, and—as he says—the amount of bleeding is very much less than when ether is used. If he implies, however, that the use of spinal analgesia in preference to ether lessens the incidence of chest complications he is treading on more controversial ground. The published figures do not lend much support to this idea.

Many anaesthetists, myself among them, will nevertheless agree with him that spinal analgesia is the method of choice for most lower laparotomies, especially when the surgeon cannot call upon an anaesthetist skilled in other methods. But it should be the aim of anaesthetists as a body to see that surgeons are not placed in such a position (except, of course, in special cases like that of the ship surgeon, of which Mr. Beattie makes timely mention): and for a surgeon to give the spinal analgesic himself when a skilled anaesthetist is present, as Mr. Beattie advocates, strikes me as uneconomical, to say the least. An anaesthetist who is relegated to the position of "morale-minder" to a patient anaesthetized by someone else will set himself to the task with less conviction than if he had given the spinal himself; and if more active measures should be needed the advantage of having the anaesthetist responsible for the whole conduct of the anaesthetic becomes doubly obvious.—I am, etc.,

RONALD WOOLMER.

SIR,—I cannot agree with Dr. N. Beattie in his letter (Jan. 5, p. 31) when he states that "no doctor should go as a ship surgeon without being master of one technique for the administration of spinal analgesia," for the very reason that conditions at sea, for the most part, contraindicate its use. Dr. Beattie himself asserted that "utmost attention to detail is necessary for success with spinal analgesia," and with this I entirely agree; but he goes on to stress the importance of "keeping the head low for 24 to 48 hours—the longer the better—to avoid headache." Lone young doctors (and some not so young, for that matter), however, mostly find themselves in small ships, and there is a substantial difference between conditions ashore and afloat in small ships. Owing to pitch and roll it would be only on rare occasions that he could be reasonably sure that a patient's head would remain in the low position, and then it is always uncertain how long such ideal conditions will prevail.

One therefore cannot help challenging the statement that it is "safer for the patient," for this is certainly not the case.

The whole question of whether it is safer to operate at sea or treat conservatively is often one which weighs heavily enough on the ship surgeon. The introduction of an extra unsafe factor, should he decide to operate, not only adds to the surgeon's responsibility but is entirely unnecessary for the successful completion, without medical aid, of an operation at sea.—I am, etc.,

Bristol. ROBERT PERCIVAL.

Operation for Varicose Veins

SIR,—I must apologize for writing once again on this vexed subject, but I feel obliged to answer certain criticisms contained in the letters from Mr. Harold Dodd and Mr. Alan Shorter (Jan. 5, p. 28). These letters serve to prove my original point—that there is no standard treatment for varices and that each case should be treated upon its merits.

Mr. Dodd claims consistently good results from flooding the circulation with large doses of hypertonic saline. I have, however, found this solution to be a very painful one and to be unreliable in its sclerotic effects. Mr. Shorter, on the other hand, advocates the use of sodium morrhuate, and states that some of his patients have severe reaction with high pyrexia and rigors. For reasons of safety he keeps his patients in hospital for at least a week. I have always regarded this solution as being a dangerous drug, and quite agree that if it is used the precaution he takes is certainly necessary. Mr. Shorter also states that early bandaging after the use of sclerosants is most important but that he has never seen this referred to before. In my own book on the subject of varices, written in 1944, on pages 34 and 57 he will note that this has been recommended as a routine procedure.

In the operative treatment of varicose veins I claim that there is one factor about which we can all agree—that a "flush ligation" combined with a careful ligature of all tributaries in the vicinity is an essential procedure before any further treatment is considered. I still maintain, however, that the use of *any* sclerosant at the time of operation in a case in which the past history gives a suspicion of previous deep vein involvement is a method which may give rise to further damage to the deep veins with a resulting oedema and incapacity. A sclerosant at the time of operation, if required at all, should be given in very small dosage. I find a safe and reliable sclerosant, which has stood the test of twenty years since first introduced by Rodney Maingot, to be "lithocaine." This is more reliable than salt and certainly more safe than sodium morrhuate. The careful planning of multiple resections of the vein in its course from the internal malleolus to its junction with the femoral vein will lessen the need for sclerosants at the time of operation. This technique is safe and the patient suffers no pain. He is ambulatory throughout treatment, and only a few injections of sclerosant may become necessary in some cases at a later date.

I do not claim that this technique gives consistently good results, since the varicose state is still one which defeats every effort of the surgeon in certain difficult cases. I agree with Mr. Shorter that out-patient technique should be avoided, but since there are several million sufferers in this country his method of prolonged hospitalization would surely cause a waiting list stretching from puberty to the grave.—I am, etc.,

London, W.1. R. R. FOOTE.

SIR,—Mr. Alan Shorter (Jan. 5, p. 28) in his stimulating letter says: "I have not found it necessary to ligate the long saphenous vein at the medial malleolus, nor can I understand the rationale of this procedure." May I explain that I include this step in the operation for three reasons:

1. The ligature and injection of the internal saphenous vein at the groin, or at the groin and the knee, often missed sclerosing the veins in the lower half of the leg. I gave up the ligature injection at the knee, and tied and injected upwards at the internal malleolus. The results have justified this step.

2. Another point is that when the varicose internal saphenous vein is tied at the groin it is "dead" in its whole length; therefore when it is injected from below the sclerosant can act undiluted throughout. An excess of the agent does two things: part goes into the systemic circulation through the communicating veins (therefore the sclerosant must be harmless—for example, concentrated salt or sugar); and part spills out into the adjacent varicosities and thromboses them in an effective manner.

3. When some varicose veins are emptied the valves may in some cases become temporarily effective, particularly if the vessel is stimulated to contract by the irritation of the scarifying solution. Therefore retrograde injections frequently fail to track as far towards the ankle as we would wish. Thus another plea for the instillation at the ankle in the normal direction of the flow.

Ligature and injection at the groin and ankle gives in my experience the best results. Occasionally, in gross specimens a ligature at the knee is also included. Less often, as Mr. Shorter says, the external popliteal vein needs dividing in the popliteal space.

I was sorry to see Mr. Shorter uses sodium morrhuate. There have been enough deaths and anaphylactic collapses after its use to merit its abandonment, especially as it is a poor sclerosant.

With regard to the statement that "early firm bandaging is most important, but I have never seen it referred to by other surgeons," the following sentence appeared in the *Practitioner* for June, 1939, in an article on operation for varicose veins: "Adhesive plaster bandage is applied from the toes to above this knee wound." I agree that once the clot is formed in the vessels firm pressure is a valuable aid to the patient's comfort and cure. I agree also that keeping patients in hospital for three or four days and getting them up on the day of operation is sound.—I am, etc.,

London, W.1. HAROLD DODD.

Diagnostic Acumen of the G.P.

SIR,—Dr. Vincent Norman (Jan. 12, p. 67) asks what general practitioner would be so ignorant as to miss an early breast cancer, and he is indignant at the reflections cast on the diagnostic ability of these members of the profession by Mr. Ernest Finch. As radiotherapist to a large provincial hospital I am only too well able to answer his question, and few of my clinics do not include at least one malignant breast, so advanced as to be inoperable, which has been regarded as innocent by the family doctor in its early stages and has led the patient to ignore it till symptoms due to metastases have arisen. I have recently seen a patient, quite beyond any form of treatment because of multiple secondaries, sent up to the physician for girdle pains by a very competent practitioner who had known the patient for many years, and had observed the development of a chronic mastitis and had presumably not noticed the gradual malignant change which was immediately apparent to anyone seeing the case for the first time.

This fault arises in two different ways, so far as I can see, and there is nothing to suggest that the average practitioner is in any way lacking in diagnostic ability when given the opportunity to use it properly. First we have the large number of mistakes that arise from inadequate examination, due to both lack of time and the great reluctance most patients have to undressing and submitting to anything resembling a complete examination, so that it is only in the hospital clinics that many quite obvious tumours are found. The breast and rectum are probably least often examined by the practitioner. Secondly, many errors arise from too frequent examination, or, perhaps one should say, too close contact, which is regarded as the mainstay of the family doctor, who knows how to deal with every little ailment in one of his faithful following, but who is thereby unable to notice the slow development of serious disease which so frequently gradually evolves from the trivial. One has seen the typical bronchial tumour arriving in hospital after many years' attention for chronic bronchitis from the family doctor, who has no obvious reason to suspect anything more gross in many cases until the case is long past being operable, and neither the patient nor anyone else is disposed to reproach the doctor who has known him to be "chesty" for many winters and who has always known just what linctus to provide. The breast case mentioned above comes under this class also, of course.

What is the solution to this problem? I think that only periodical examination, including complete physical examination and *x*-ray of the chest by someone experienced in such examinations, other than the family doctor, will reveal early disease. The question at once arises about the intervals of examination and the exact extent required, about which much

discussion is possible, but I would suggest an interval of six months over 40 years and twelve months under 40. I have been impressed by the relatively large number of cases of early malignant disease which have been diagnosed in certain of the Services, where frequent and thorough medical examinations have been the rule, and this encourages one to think that the general public would benefit from similar attention.

May I say in conclusion that I have a high opinion of the diagnostic ability of the average practitioner, and lay the blame for the late diagnosis of malignant disease to a large extent on existing conditions of work and on the poor development of our medical services generally.—I am, etc.,

Hove. E. MILLINGTON.

The Medical Future of the Colonies

SIR,—I have read your leading article on the medical future of the Colonies (Nov. 17, 1945). It is full of interesting constructive criticism, but has been marred to a great extent by the words: "These reforms are suggested only for European medical officers." Why Europeans? The admission of Colonials into the Colonial Medical Service under the same conditions as Europeans is the only thing that will satisfy the Colonial-born. They for two or three generations, without the aid of scholarships and bursaries, have had medical men in their families, have obtained qualifications of British universities, and have acquired practical experience in their profession before taking appointments in the Colonies.

The aim of the Colonials is to have the whole of the Colonies staffed by Colonial medical officers. Merit, efficiency, and qualification, not colour and race, must be the determining factors; these, so far as I am aware, have been the professed ideals of the British Commonwealth, though seldom put to practice. The sooner the British Medical Association champions this axiom the more contented and happy will be the members that go to make this heterogeneous Empire.

There is at present widespread dissatisfaction, recruitment is difficult; Colonials, men and women, prefer to practise their profession in the United Kingdom, where they will be received on their worth, rather than enter a service where they are thwarted and their qualifications and energies never given the scope they deserve. When they do enter the locally recruited service, despite their excellent previous records, they become for ever doomed to a subordinate role in their own country, just because they are not Europeans. For example, Colonial-born senior medical officers of 32 years' standing can only aspire to a salary of £820 per annum, while a European medical officer of 16 years' service automatically attains to a salary of £1,200 per annum with many other amenities. These are the inequalities and injustice that the British Medical Association should fight to eradicate or else it becomes a mockery for Colonials to enjoy its membership.—I am, etc.,

West Africa. "A COLONIAL."

D.D.T. Poisoning

SIR,—The evidence regarding the toxic action of kerosene in children is somewhat conflicting, and it is felt that whereas in a baboon weighing 6 lb. (2.72 kg.) a dose of 25 c.cm. may not prove fatal, it does not follow that such a result would occur in a child of 19 months. The *Extra Pharmacopoeia* (Martindale, 1941, **1**, 786) records four cases of kerosene poisoning in children with one death, and the same work (1938, **2**, 281) states that "an oil of s.g. 0.860 is more of the nature of petrol than liquid paraffin. It passes too rapidly through the system. A light spirit could be positively injurious by reason of its caustic solvent nature." The opinion of a foremost U.S. toxicologist is that kerosene is fatal taken internally.

Sufficient toxicological data have now been assembled to show that D.D.T. in organic solvents can be potentially dangerous if not handled with care or if taken internally. Nevertheless, according to the *Journal* of March 10, 1945 (p. 338), "If it is agreed that the most dangerous form is an oil solution it is reassuring to calculate that a 70-kg. man would have to drink 200 c.cm. of a saturated solution in kerosene, or 2 litres of a 0.5% fly spray, in order to swallow the equivalent of the most cautious of the estimated lethal doses for small mammals (in this calculation the toxicity of the solvents is ignored)."

It appears, therefore, that the fatal case of poisoning in the 19-months-old son of a West African soldier recorded by Major K. R. Hill and Dr. G. Robinson (Dec. 15, 1945, p. 845) might as easily be ascribed to the kerosene as to the D.D.T., but the extensive use of this insecticide during the past two years without any case of known intoxication has amply demonstrated that when handled with due care it need not give rise to any unnecessary alarm. It is felt that in fairness to the discoverers of D.D.T. (J. R. Geigy S.A., Switzerland), with whom this company is closely associated, the above information should be brought to the notice of your readers.—I am, etc.,

Manchester, 17. I. E. BALABAN, Director of Research, the Geigy Company Ltd.

Surgical Catgut

SIR,—In view of Mr. H. J. McCurrich's further letter (Jan. 12, p. 66) I am compelled, most unwillingly, to ask for a small part of your space to put matters straight.

If Mr. McCurrich refers to my previous letter (Dec. 29, 1945, p. 937) he will see that I was contradicting his statement that the raw material for making catgut in this country is *all* imported, not that *some* of it is imported, which, of course, is the case.

With regard to the information, which he says was given to him by a representative of a catgut firm, that they were not allowed "to use mercuric salts in surgical catgut," if he will refer to the Therapeutic Substances Regulations, 1931, Sixth Schedule, he will see that no such restrictions have been made, and that any method of sterilization is allowed so long as the resulting product can pass the tests for sterility laid down in the Regulations. As a matter of fact the methods of sterilization used by the different licensed manufacturers both in this country and abroad have been extremely varied, but all which have survived have produced surgical catgut satisfactory from the point of view of sterility, whatever effect the process may have had on tensile strength or other physical qualities so important to the surgeon but which, as I pointed out before, are not controlled under the Therapeutic Substances Act.

I can assure Mr. McCurrich that the administration of the Therapeutic Substances Act is not affected by any "political and commercial interests," the only object in fact being to ensure that the therapeutic substances concerned are manufactured and issued in accordance with the criteria laid down in the Regulations based on purely scientific considerations.—I am, etc.,

Ministry of Health, S.W.1. WELDON DALRYMPLE-CHAMPNEYS.

The Metric System

SIR,—The views of your correspondent in Turkey regarding the use of the metric system in medicine prompt me to direct attention to the steps which I am informed have already been taken elsewhere. The table of apothecaries' weights has been abolished throughout the Union of South Africa in favour of metric weights, and the Council on Pharmacy and Chemistry of the American Medical Association has decided to use only the metric system in all its publications. Your laudable decision (Jan. 5, p. 19) to employ the metric system in the *Journal*—which circulates in so many countries—cannot fail to shorten the transition from the present use of two conflicting systems to the general use of the metric system only as the sole language of quantity in all countries. The International Chamber of Commerce has officially recommended "that all systems of weights and measures, other than the metric system, be abandoned."—I am, etc.,

London, W.4. HARRY ALLCOCK, Chairman of Council, Decimal Association.

A Fundamental Principle

SIR,—The *Journal* of Dec. 29, with Prof. J. A. Ryle's letter (p. 936) on the possible direction of doctors in a State service, has just reached me. Surely, if uneven distribution of doctors results from one social environment being more attractive to doctors than another, no matter what the ultimate reason, the remedy is to improve the amenities of practice in the less attractive areas sufficiently to provide competition with the others. This could be done in a State service by relating remuneration to demand, or by providing the means of obtain-

ing specially attractive equipment, quarters, and facilities—a procedure which would have the advantage of enticing the better doctor into the area. A combination of these two measures would probably be more effective than either alone.—I am, etc.,

R. W. CROCKET, Squad. Ldr.

B.A.O.R.

Questionaries, Past and Future

SIR,—Dr. Robert Ritchie makes a very timely suggestion that an up-to-date questionary should be drawn up forthwith and sponsored by the B.M.A. The seven questions he offers for consideration are straightforward and unequivocal. If the B.M.A. really claims to reflect the recent views of its members can it offer any cogent reason why this questionary should not immediately be issued, or can it suggest how better such recent views could be ascertained?

There is little doubt about the meaning of the apparently generous offer of the State to buy up practices; it is nothing other than a political manœuvre to gain control of medical men who hitherto have been a little difficult to regiment, but who, with their livelihoods at stake, may the more readily be persuaded to "eat from the hand" if they be but fools enough to accept at its face value this transparent act of generosity and sell their souls for a "mess of pottage." Who is Mr. Aneurin Bevan that he should decree that "it is highly improbable that *I* will permit the sale and purchase of practices"? Hitler issued just such edicts. We do not look with equanimity on similar pronouncements in this country. Are we freemen or bondsmen and are we to sit idly by while, by the stroke of a pen or the issuing of a regulation, our liberty and freedom of livelihood are filched from us?

Cannot our Association be strong enough to give us a lead when leadership is obviously needed? Armed with the mandate from a fresh questionary our negotiators would then be in touch with "up-to-the-minute" professional feeling. Until housing, feeding, clothing, and education are adequate State medicine at this juncture can be but a parrot cry to trap the unwary in so far as it offers improved health to the community; but State control of the doctor is a powerful political weapon for controlling all units of the population through a medical civil service owning allegiance only to a soulless State, from whom alone then would come its daily bread.—I am, etc.,

G. H. URQUHART.

St. Annes, Lancs.

Obituary

J. FALCONER HALL, C.M.G., M.B., C.M.
Surg. Rear-Admiral, R.N. (ret.)

We regret to announce the death of Surg. Rear-Admiral J. Falconer Hall at Chudleigh, Devon, on Jan. 15. After his retirement from the Navy, at the end of a distinguished career afloat and ashore, he was appointed in 1931 a Commissioner of the Board of Control for England and Wales, and held that post until 1938.

John Falconer Hall, son of William Hall, was born on Feb. 23, 1872, and studied medicine at the University of Aberdeen, graduating M.B., C.M. in 1893 and entering the R.N. Medical Service in 1895. After active service on the China Station, for which he was mentioned in dispatches, specially promoted to staff surgeon, and awarded a medal, he won the Gilbert Blane gold medal in 1902 under a deed of trust held by the Royal College of Surgeons of England from Sir Gilbert Blane, F.R.S., the Naval sanitary reformer. In the war of 1914–18 he served in the battleship *Hannibal* at Scapa, in the battle-cruiser *Australia* with the Grand Fleet, and as senior medical officer of the hospital ship *Soudan*. For these services he was again mentioned in dispatches and created C.M.G. In 1919–20 he was Deputy Director of the Medical Department of the Admiralty, and in 1920–3 second in charge at Haslar Hospital at Malta. He held the appointment of Honorary Surgeon to the King from January, 1925, until September, 1938.

Admiral Falconer Hall had joined the B.M.A. in 1899 and sat on the Council as representative of the R.N. Medical Service from 1928 to 1932; he was also a member of the Naval and Military Committee and the R.N. Subcommittee and of the Committee on Medical Branches of the Fighting Services which reported fifteen years ago. In 1942–3 he held office as president of the United Services Section of the Royal Society of Medicine.

H. A. B. WHITELOCKE, T.D., M.Ch., F.R.C.S.

Hugh Whitelocke, who died in the Acland Home on Jan. 8, will be sincerely mourned by a host of friends in Oxford and elsewhere.

He was born in Oxford in 1891, the eldest son of Mr. H. R. A. Whitelocke, himself a well-known surgeon and a member of the honorary staff of the Radcliffe Infirmary. He was educated at Summerfields, Rugby School, and Christ Church, and completed his medical training at King's College Hospital in 1915. After qualification he saw service in the Sudan and elsewhere during the 1914–18 war, after which he returned to Oxford and specialized in surgery. He became a Fellow of the Royal College of Surgeons of Edinburgh in 1924 and of England in 1925, and in 1926 he became a Master of Surgery of Oxford University, one of the highest surgical qualifications. He was a Fellow of the Association of Surgeons of Great Britain and Ireland, ex-president of the Oxford Medical Society, and the author of numerous articles on surgery. He was elected an honorary assistant surgeon to the Radcliffe Infirmary in 1919, and became a full honorary surgeon in 1926. Thenceforward, until the second world war broke out, he practised as a consulting surgeon in Oxford, and in course of time became the senior surgeon at the Radcliffe Infirmary as his father had done. In 1939 he was appointed to command a Territorial General Hospital (the 16th British General Hospital) with the rank of colonel. He mobilized this unit, which consisted largely of local men, at the Examination Schools and took it to France in January, 1940. When France was invaded the hospital was evacuated from Boulogne just in time to avoid capture. Soon afterwards Whitelocke was invalided out of the Army and resumed his work at the Radcliffe Infirmary, and in the neighbourhood of Oxford at a time when an acute shortage of surgeons placed a great strain upon him and his colleagues. Although his health was not good, he continued to play an active part in the surgical work of the Infirmary, which had become a medical school in 1939. In addition to his appointment in the Radcliffe Infirmary he was the honorary consulting surgeon to the Moreton-in-the-Marsh, Buckingham, Shipston-on-Stour, and Thame Cottage Hospitals, and to the National Hospital for Diseases of the Heart at Maids Morton. He also held the posts of Litchfield Lecturer in Surgery and clinical examiner in surgery in the University of Oxford. He had been honorary secretary of the Oxford Division of the B.M.A. and vice-president of the Section of Surgery at the 1936 Annual Meeting.

Hugh Whitelocke was one of the most sociable and hospitable of men, and never allowed his exacting professional work to cut him off from social intercourse with his large circle of friends. He was a very effective, if somewhat unorthodox, golfer, and was a regular player at Frilford, of which club he was captain in 1936. He was a member and Past Master of the Churchill Lodge of Freemasons and a member of the Apollo Lodge. He was also a keen bridge player and a good shot. While an undergraduate he was a member of the Christ Church Rugby XV, and subsequently became surgeon to the University team.

The qualities which those who knew him will remember most were his invariable courtesy, good temper, and geniality, and the fact that he rarely, if ever, said or did an ill-natured thing. His wide professional practice, his good manners, and his friendly disposition made him one of the most popular and best-known men in the neighbourhood of Oxford, and he will be greatly missed by a quite exceptionally large number of patients and personal friends. In 1934 he married Miss Madeleine Shankland, who joined with him in all his social activities and shared his popularity.

E. C. B.

Mr. HERBERT JAMES MARRIAGE, consulting aural surgeon to St. Thomas's Hospital, died at the age of 73 at Woldingham, Surrey, on Jan. 12. He had been secretary of the Section of Otology at the Annual Meeting of the British Medical Associa-

tion in London in 1910 and president of the Otological Section of the Royal Society of Medicine in 1915. Educated at the City of London School and St. Thomas's Hospital, he took the Conjoint diplomas in 1897, the M.B.Lond. in 1899, and the B.S. two years later, and was admitted F.R.C.S. in 1902. His early posts at St. Thomas's were those of house-surgeon, house-physician, surgical registrar, and surgical tutor. After studying otology and rhinology at clinics in Germany he was elected aural surgeon to St. Thomas's in 1904, and held that post until his retirement in 1932. He was also aural surgeon to the London Fever Hospital for three years, and clinical teacher in otology and rhinology at the Royal Army Medical College. Marriage published a number of papers on his specialty in the *Lancet*, the *Transactions of the Otological Society*, and the *Journal of Laryngology, Rhinology and Otology*.

Mr. JOHN WILLIAM HEEKES, M.B., B.S.Lond., who died at his home in Barnes in November last, will leave a position very difficult to fill by any one person, for he persistently did the work of two, especially at Richmond Royal Hospital, where he had been honorary surgeon for 25 years. His consuming passion and major hobby was surgery, and for this work his energy was apparently unlimited, and still undimmed after long nights of operating on war casualties in the dark days. Besides being a general surgeon he was also the gynaecologist at Richmond and lecturer to and examiner of nurses, and in addition had a large private practice, in later years almost entirely surgical. His wide taste and practice in surgery was foreshadowed early in his training, for, besides being house-surgeon after qualifying in 1906, he was later resident obstetric officer and clinical assistant to the throat and ear department at Charing Cross Hospital, keeping in touch with hospital teaching long after starting to practise. He became captain, R.A.M.C., in the 1914–18 war and was attached to 46 C.C.S., later becoming surgeon to St. Andrew's Hospital at Malta and to Queen Alexandra's Hospital at Millbank. After the war he was surgeon specialist to Belmont Hospital, where up to 1,400 German prisoners passed through his hands, and this unusual and concentrated surgical experience decided him to forsake general for surgical practice. In 1920 he was elected honorary surgeon and later gynaecologist to Richmond Royal Hospital—positions which he filled admirably and energetically. During this last war he was surgeon specialist, E.M.S., at Richmond and was later in charge of the fracture clinic. In 1929 he was appointed lecturer and examiner in surgery and gynaecology by the General Nursing Council—a position which he enjoyed and in which he was deservedly popular. He was direct in manner, very outspoken when necessary, but a most amiable colleague to work with, and possessed of a smile of real charm most reassuring to patients. As a surgeon he was courageous and bold to a startling degree once he had decided on the correct course of action; he was rapid and untiring and had that sound sense of judgment that only comes from long experience and intelligent consideration of his subject. As he worked, so he relaxed—energetically. He was a good horseman and used to ride regularly; he took long holidays abroad whenever possible, and had been to and appreciated most of the European countries. A few years ago he bought a farm, and with his accustomed energy threw himself into the problems confronting smallholders, but the outbreak of war largely hindered his activities in this direction. His last illness, which was a protracted one of over a year, he bore with unusual fortitude and cheerfulness maintained up to the end.—C. H. C.

We regret to announce that Dr. HAROLD JOHN VAN PRAAGH, of Hampstead, died on Jan. 15 after a long illness. He was born in London in 1877 son of William Van Praagh and studied medicine at St. Mary's Hospital, where he won a natural science scholarship and the Meadows scholarship in midwifery and gynaecology. Having graduated M.B.Lond. with honours in medicine in 1899, he held a series of house appointments at St. Mary's, and was for a time casualty physician. He took his M.D. degree in 1901. During part of the last war he served at the Cambridge Hospital, Aldershot, with the temporary rank of captain, R.A.M.C. Dr. Van Praagh, after settling in practice in Langland Gardens, N.W., became honorary anaesthetist to the Hampstead General Hospital and to the Hospital of St. John and St. Elizabeth. He was a member of the Council of the Hampstead Medical Society, and chairman of the Hampstead Division of the B.M.A. in 1925–6.

Dr. JAMES KENNETH WATSON died on Dec. 9, 1945, from injuries received when he was knocked down by a motor-car in Bournemouth. Dr. Watson was born in 1870 and received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1892, proceeding M.D. four years later. After qualifying he held successively house posts at Morpeth Dispensary, Sheffield Royal Hospital, Sheffield General Infirmary, and Essex and Colchester Hospital. In 1896 he settled in practice at Byfleet, Surrey, where he became medical officer and public vaccinator to the Chertsey Union, and medical officer to the Post Office. He moved to Sydenham in 1910, and in 1914 became M.O.H. for Stevenage and assistant medical inspector of schools for Hertfordshire. He served as a captain in the R.A.M.C. in the war of 1914–18. He was for a time a member of the Lord Chancellor's Pension Appeal Board. Dr. Watson was the author of *Handbook for Nurses*, which passed through eleven editions, *Handbook for Senior Nurses and Midwives*, and *Anaesthesia and Analgesia for Nurses and Midwives*. He had been a member of the B.M.A. for many years.

Dr. DONALD GEORGE SUTHERLAND, who died at Ealing on Jan. 10 in his 83rd year, had been chief bacteriologist to the Metropolitan Water Board laboratories and was well known as an authority on water analysis. He was educated at Watson's College and the University of Edinburgh, graduating M.B., C.M. in 1886 with the University medal in medical jurisprudence and public health, and taking the B.Sc. in Public Health three years later. In 1890 Dr. Sutherland became M.O.H. for the County of Sutherland and Burgh of Dornoch; some years later he was called to the Bar by the Middle Temple, and in 1900 entered as an advanced research student at St. John's College, Cambridge, receiving the M.A. degree of that university. After a period as assistant bacteriologist in the Local Government Board laboratories he was appointed bacteriologist to the M.W.B. in 1905. He wrote a succession of nine sanitary reports on the County of Sutherland and a dissertation on certain spore-bearing anaerobic organisms considered as criteria in the bacteriological examination of water supplies. He had been a member of the B.M.A. for 58 years.

The Services

Major-Gen. Osburne Ievers, C.B., D.S.O., M.B., late R.A.M.C., has been appointed Colonel Commandant of the R.A.M.C., and Major-Gen. John Percival Helliwell, M.R.C.S., L.R.C.P., L.D.S., Colonel Commandant of the Army Dental Corps, for 1946.

The following have been mentioned in dispatches in recognition of gallant and distinguished services in Italy: Col. (Temp.) W. A. D. Drummond, O.B.E., R.A.M.C. Col. G. R. Forbes, E.D.; Lieut.-Cols. W. K. Bice, L. E. R. Luckey, and H. S. Mitchell; Majors D. K. Grant, and I. S. Maclean; Capts. W. M. Byers and J. G. W. Swanson, R.C.A.M.C.

The following appointments and awards have been announced in recognition of gallant and distinguished services in Burma:

C.B.E. (*Military Division*).—Brig. (Temp.) H. G. Winter, M.C., V.H.S., late R.A.M.C. Brig. (Acting) G. B. Jackson, I.M.S.

O.B.E. (*Military Division*).—Lieut.-Col. (Acting) K. J. Dunlop; Lieut.-Cols. (Temp.) H. V. Ingram, R. T. Johnson, D. M. Baker, A. Burns, M.C., J. McI. D. McIntosh, and W. H. Wolstenholme, M.B.E., R.A.M.C. Lieut.-Col. (Temp.) A. E. Kingston, I.M.S.

M.B.E. (*Military Division*).—Lieut.-Col. (Temp.) J. F. Heslop; Majors (Temp.) J. V. Crawford, W. Drummond, F. Evans, M.C., H. G. Page, and J. P. Scrivener; Capts. G. A. Craig, C. M. MacGeoch, A. McDiarmid, E. Rentoul, and C. E. S. Myers, R.A.M.C. Lieut.-Col. (Temp.) G. V. Chaphekar, Major (Temp.) M. P. Ali, and Capts. A. D. A. Maconochie and J. L. G. Pinto, I.M.S. Lieuts. C. R. Narayan and H. Ali, I.A.M.C.

D.S.O.—Lieut.-Col. (Temp.) J. R. Kerr, I.M.S.

M.C.—Major (Temp.) W. J. Ramsay, and Capts. E. G. W. Clarke and L. Willson, R.A.M.C. Capts. T. L. W. McCullagh and V. Chittor, I.M.S. Capt. (Temp.) D. Ramanath, and Lieut. Gangaprasad, I.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Killed in air crash on way home from India.—Capt. Paul Verrier Isaac, R.A.M.C.

The estimated expenditure of the Bradford and County Joint Cancer Committee for 1946–7 in respect of the Radium Institute is £21,305, including £12,445 for salaries. The end of the war has enabled the Committee to secure a more normal staff, especially on the technical side, and to increase its estimate of costs. The chief contributors are the Bradford Corporation, £7,180; Royal Infirmary, £5,340; and the West Riding County Council, £7,375.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The subject of the present course of lectures on the History of Science, in the Mill Lane Lecture Rooms on Saturdays at 12 noon, is the development of experimental science with special reference to the nineteenth century. On Feb. 23 Prof. H. Hartridge will lecture on discoveries in animal physiology; on March 2 Sir Henry Dale, on experiment in medicine; and on March 9 Prof. F. C. Bartlett, on experimental psychology.

During December, 1945, the title of the degrees of M.B., B.Chir. was conferred on C. E. Cooper, of Girton College.

UNIVERSITY OF GLASGOW

At a ceremony of graduation, held on Jan. 12, the following medical degrees were conferred:

M.D.—A. K. MacRae (with honours), Constance A. C. Ross (with commendation), W. McAdam.

M.B., CH.B.—J. Rankin (with commendation), J. M. Adam, J. K. Anderson, J. Austin, Elizabeth Boothe, J. Buchanan, R. W. Campbell, G. A. Carnachan, D. B. Carruthers, D. Clark, D. S. Cranston, J. S. Creighton, Isabella G. MacL. Cunningham, J. M. Harper, R. R. Houston, K. Jack, W. A. Jackson, M. Laidlaw, R. M. Lang, J. W. Little, J. A. McCusker, N. McDougall, J. A. W. Maguire, D. H. Munro, J. D. Nelson, T. C. Nicol, J. H. Noble, J. M. O'Brien, R. H. Park, J. D. Paterson, J. Prentice, I. P. F. Rae, J. H. R. Ramsay, W. Ramsay, R. C. Robb, Jean W. Roberts, W. Roy, Betsy D. Scott, W. L. Selkirk, D. C. V. Stewart, Elizabeth Stewart, T. Thomson, W. F. Toomey, J. L. F. Wyllie.

The Bellahouston Medal for eminent merit in thesis for the degree of M.D.: T. Anderson.

UNIVERSITY OF ST. ANDREWS

The following candidates have been approved at the examinations indicated:

M.B., CH.B.—D. A. Kerfoot (with commendation), W. K. Bryson, J. H. Burt A. Douglas, I. C. Geddes, Katherine M. Kelly, H. A. F. Mackay, Joan C. Main W. B. Wallace, Margaret A. M. Wilson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Moynihan Lecture was delivered on Jan. 9 by Prof. Willem Noordenbos, professor of surgery in the University of Amsterdam. Immediately before the lecture Prof. Noordenbos was admitted to the Honorary Feliowship of the College to which he had been elected in 1943 while in captivity under the Germans. On Jan. 10 Sir Henry Dale, formerly President of the Royal Society, and Sir William H. Collins, the greatest living benefactor of the College, were also admitted Honorary Fellows.

The First Lord of the Admiralty presented the Gilbert Blane Medal to Surg. Lieut.-Cmdr. F. P. Ellis, R.N., awarded to him for his observations on the effect of the thermal environment on the health and efficiency of ships' companies working in the Tropics under active-service conditions and at action stations. The Medical Director-General of the Navy and the President of the Royal College of Physicians of London witnessed the presentation.

At a meeting of the Council on the same day, with Sir Alfred Webb-Johnson, President, in the chair, Prof. F. Wood Jones was admitted as the first Sir William H. Collins Professor of Human and Comparative Anatomy.

It was reported that Sir James Walton would deliver the Hunterian Oration for 1947 and Sir Heneage Ogilvie the Bradshaw Lecture for 1946.

The Council received with gratification gifts to the restoration and development fund of $5,000 from the staff of the Mayo Clinic and the Faculty of the Mayo Foundation and of £N.Z.500 from the New Zealand Division of the Royal Australasian College of Surgeons on behalf of the Fellows of the English College in New Zealand.

It was reported that the remainder of the library books and the College collection of portraits and busts had been brought back to London from their various places of safety in the country.

It was agreed to institute a club in the College for Fellows, Members, and Licentiates in Dental Surgery and the members of all the associations linked with the College through the joint secretariat at No. 45, Lincoln's Inn Fields.

It was decided to hold a meeting of Fellows on Wednesday, May 8, at 6 p.m.

Diplomas in Psychological Medicine and in Laryngology and Otology were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—A. Conachy, A. J. F. Crossley, J. E Duffield, P. E. Sundt, T. G. Williams.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—F. Badrock, R. V. Blaubaum, L. Boss, T. McM. Boyle, L. C. Jacobson, H. Jelinek, A. E. Khan, H. E. McHugh, W. J. O. Page, W. M. Ritchie.

Correction.—An asterisk should have appeared against the name of K. D. Roberts in the University of Birmingham pass list published in this column on Jan. 12 (p. 72), thus indicating that he had graduated M.B., Ch.B., *with second-class honours.*

Medical News

The Scientific Committee and Trustees of the R. L. St. J. Harmsworth Memorial Fund have awarded £5,000 to Sir Alexander Fleming and £2,500 each to Sir Howard Florey and Dr. E. Chain in recognition of their work with penicillin in the treatment of infective endocarditis. The presentation was made by Lord Horder on Jan. 22.

At a meeting of the Medical Society for the Study of Venereal Diseases, 11, Chandos Street, Cavendish Square, W., to-day (Saturday, Jan. 26), at 2.30, Dr. Drapkin will convey greetings from the Chilean V.D. Society, and Major M. H. Salaman, R.A.M.C., will give an address on "Non-specific Genital Infections," followed by discussion.

The next meeting of the Middlesex County Medical Society will be held at Kodak Works, Wealdstone, Harrow, on Thursday, Jan. 31, at 2.30 p.m.

The Association for Scientific Photography (Tavistock House North, Tavistock Square, W.C.1) has arranged a meeting in the Caxton Hall, Westminster, S.W., on Thursday, Jan. 31, at 6.30 p.m., to discuss forensic photography. The opening paper will be by Mr. Henry T. F. Rhodes on the applications of photography to the science of criminal investigation, showing the way in which photographic and photomicrographic methods are applied. On Friday, Feb. 15, at 4 p.m., the Association will meet in the premises of Imperial Chemical Industries, Ltd., at Billingham, Co. Durham, to hear a paper by Dr. A. E. I. Vickers on photography applied to physico-chemical research.

A science meeting of the Colour Group of the Physical Society will be held on Wednesday, Jan. 30, at 3.30 p.m., in the small Physics Lecture Theatre, Imperial College, Imperial Institute Road, S.W. Mr. R. Donaldson will describe a colorimeter with six matching colours, and Mr. T. B. Davenport a direct-reading photo-electric spectrophotometer.

The Association of Austrian Doctors in Great Britain announces that Mr. C. Eisinger will speak on "Recent Advances in Oto-rhino-laryngology" at 69, Greencroft Gardens, N.W.6, on Thursday, Jan. 31, at 7.30 p.m.

A meeting of the Whipps Cross Hospital Medical Society will be held on Friday, Feb. 1, at 8.30 p.m., when Dr. J. Purdon Martin will speak on "Sciatica."

The Torquay Medical Society held its centenary dinner at the Drum Inn, Cockington, on Jan. 17. Sixty members and their guests were present, including the father of the society, Dr. Young Eales, who is 87 years of age and has been a member for 57 years.

Three scholarships for boys are available for entry to the Thames Nautical Training College, H.M.S. *Worcester*, at the next summer term. They are the Leverhulme Scholarship valued at £125 per annum, the Marine Society Bursary (£70), and the Goldsmiths Company's Scholarship (£50), all tenable for two years in reduction of the normal fees of £140 per annum. Successful candidates will be trained at the College to become executive officers in the Merchant Navy, and applications will close on Jan. 31. Candidates must be between the ages of 15 and 16 years in May, 1946, and will be required to undergo an examination in February. Form of application, specimen examination papers, and copy of the College prospectus can be had from the secretary, Ingress Abbey, Greenhithe, Kent.

The Cecil Joll Memorial Fund has reached the figure of £1,050. The date of closure for subscriptions has been fixed as March 1. The intention of the promoters was to ask the President and Council of the Royal College of Surgeons to establish a biennial or triennial prize essay on a surgical subject.

It has been found necessary to terminate the arrangements made for supplying dried bananas free of cost to persons suffering from steatorrhoea (including coeliac disease and tropical sprue). In future Messrs. Mapleton's Nut Food Co., Ltd., Garston, Liverpool, 19, will supply dried bananas direct to these patients at the rate of 14 lb. per month and at a cost of 9½d. per lb. post free. Applications for supplies should be supported, in the first instance only, by a medical certificate.

As part of the campaign to recruit hospital nursing and domestic staff, the London County Council arranged a public exhibition of its hospital services which is being held at the County Hall, Westminster Bridge, all this week until Saturday at 8 p.m. The general object of this exhibition is to show the various possibilities and attractions of nursing as a profession, particularly in relation to the Council's large range of hospitals and the openings and training available for domestic workers. It includes an information bureau for persons thinking of taking up nursing or domestic work with the L.C.C., and also an interview room for intending candidates.

Dr. A. A. McWhan is to retire from the appointment of M.O.H. for Berwickshire on Feb. 14 after nearly 35 years' service in that post, and will be succeeded by Dr. Alastair Allan, deputy M.O.H. for the port and town of Greenock.

The Scientific and Technical Group of the Royal Photographic Society of Great Britain (16, Princes Gate, S.W.7) has prepared its fixture list for the present session. Copies may be had from Mr. W. F. Berg, Research Laboratories, Kodak, Ltd., Harrow, Middlesex.

Through the Dominions Office, the India Office, and the Colonial Office, all Empire and Colonial administrations have been invited to co-operate in making the new *British Pharmacopoeia*, now in active preparation, a pharmacopoeia suitable for the whole British Commonwealth of Nations. Mr. R. R. Bennett, B.Sc., Harrison Memorial Medallist, told the Pharmaceutical Society in the course of his recent address that preparations which have mainly a local use in particular parts of the Empire will not be included; but supplementary lists of these may be issued locally for local needs. The Pharmacopoeia Commission has exchanged reports and discussions with the Committee of Revision of the *United States Pharmacopoeia* in order to harmonize the titles of both works.

The first of thirteen U.S. Army hospitals bought by U.N.R.R.A. for Poland and Yugoslavia left Newcastle-upon-Tyne on Jan. 14 for Poland. Eleven are 1,000-bed general hospitals, one is a 750-bed evacuation hospital, and one a 400-bed field hospital. Others are being dispatched from other British ports, and it is expected that all thirteen will have been delivered by the end of this month. They were originally intended to be used in the Far East.

The Minister of Works has appointed Major-Gen. R. C. Priest, C.B., to be House Governor of King Edward VII Convalescent Home for Officers at Osborne, Isle of Wight, in succession to Surgeon Rear-Adml. B. Pickering Pick, C.B.E.

The Privy Council has nominated Dr. Bertram A. Young, medical superintendent of St. Alfege's Hospital, Vanbrugh Hill, S.E.10, to the vacancy on the Council of the Pharmaceutical Society of Great Britain created by the resignation of Sir Walter Langdon-Brown on account of ill-health.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* an increased prevalence was recorded for whooping-cough (324 more cases), measles (206 more), and dysentery (20 more), while 126 fewer cases of scarlet fever and 45 fewer of diphtheria were notified.

Whooping-cough, which fell by almost 50% during December, rose throughout the country, the largest increase being London 52. The decline in scarlet fever was general except in the south-western counties, Wales, and the south Midland counties. The largest decreases in diphtheria were Lancashire 24, Durham 22, Warwickshire 11, Northamptonshire 10; the only increases of any size were Nottinghamshire 16, and Suffolk 12. The biggest rises in measles were Lancashire 62, and Norfolk 44, the incidence in the latter county being at the highest level for two years.

Notifications of dysentery in the Melton Mowbray area of Leicestershire increased the size of the recent outbreak from last week's total of 102 to 150. The only other large returns were London 32, Lancashire 24, and Yorks West Riding 12.

In *Scotland* the chief feature was the large increase of 156 in acute primary pneumonia. Small rises were recorded for whooping-cough, scarlet fever, and diphtheria, of 13, 11, and 7, respectively. For the third consecutive week a decrease was notified for measles, and this disease is now at the level of last summer. A fall of 28 in the total for dysentery resulted in the lowest number of cases during recent months. The incidence of cerebrospinal fever has been doubled during the past fortnight; 22 of the 34 cases were notified in the city of Glasgow.

In *Eire* the outbreak of measles appears to be subsiding, 103 cases being recorded during the week. Scarlet fever and whooping-cough were at a low level, but diphtheria remained high with 85 cases.

In *Northern Ireland* the incidence of infectious diseases showed very little change.

Week Ending January 12

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,355, whooping-cough 1,190, diphtheria 525, measles 777, acute pneumonia 1,445, cerebrospinal fever 86, acute poliomyelitis 10, dysentery 344, paratyphoid 2, typhoid 3. In the great towns 165 deaths were attributed to influenza.

No. 1

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.
Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.
A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1946 (a)	(b)	(c)	(d)	(e)	1945 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	53	4	34	3	2	49	5	37	2	2
Deaths		2	1				2	2		
Diphtheria	469	31	172	85	14	439	17	141	110	27
Deaths	12	1	4	—	1	14	—	—	1	1
Dysentery	285	32	38	2	—	204	67	110	—	—
Deaths									—	—
Encephalitis lethargica, acute	1	—	1	—	—	—	—	—	—	—
Deaths		1					—			
Erysipelas			35	9	7			59	11	2
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				17					13	
Deaths	66	7	6	18		41	6	5	6	3
Measles*	771	88	32	103	1	11,947	240	697	10	281
Deaths	6	—	—	1	—	13	—	1	—	—
Ophthalmia neonatorum	62	7	12	—	—	63	6	14	1	—
Deaths										
Paratyphoid fever	2	2	—	—	—	1	—	—	—	1(B)
Deaths	—	—	—	—		—	—	—	—	—
Pneumonia, influenzal	1,165	99	36	9	9	1,242	60	14	2	20
Deaths (from influenza)†	123	15	17	—	2	55	9	2	2	1
Pneumonia, primary			432	27				368	19	
Deaths		79		21	10		65		24	15
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	13	—	—	2	—	3	—	—	1	—
Deaths		—					—			
Puerperal fever		2	14		—		3	15		—
Deaths										
Puerperal pyrexia‡	135	11	9	1	—	124	10	11	2	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,250	111	263	16	31	1,462	48	192	18	67
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	2	5	1	8	1	—	8	—
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,048	96	37	10	9	1,538	80	84	72	19
Deaths	14	2	—	—	—	15	—	2	1	1
Deaths (0–1 year)	483	68	49	51	17	480	54	72	43	35
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	6,291	1,055	742	263	149	6,796	1105	697	315	171
Annual death rate (per 1,000 persons living)			16·8	16·9				15·8	20·3	
Live births	7,484	1,195	898	408	226	7,753	821	929	451	305
Annual rate per 1,000 persons living			18·0	26·1				18·6	29·1	
Stillbirths	217	20	34			224	20	25		
Rate per 1,000 total births (including stillborn)			36					2(		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only
† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.
‡ Includes puerperal fever for England and Wales and Eire.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Toxic Effects of High Octane Petrol

Q.—*Is anything known about chronic poisoning with high octane spirit? A patient who drove a petrol lorry for three years and was constantly exposed to fumes, sometimes having to step back to avoid being overcome during filling operations, is now in bed with pains in the back, epigastric fullness, gross hypertension, and severe retinitis. Urine shows no albumin or other abnormality; urea clearance 70% normal; no gross abnormality in the blood count. Is the present condition likely to be connected with the petrol? Would any other tests be useful, and is there any treatment?*

A.—While little is known about chronic poisoning from octane spirit, it is certain that octane is more acutely toxic than petrol of lower specific gravity and boiling-point. Among the disturbances following chronic exposure to petrol fumes are listed: headache, vertigo, lack of concentration, respiratory disorders, loss of corneal reflex, tremor of eyelids, paraesthesiae of the hands, increased knee-jerks, chronic polyneuritis, and nephritis. Neither in chronic poisoning nor in the sequelae of acute or subacute poisoning (the last may perhaps be applicable to your case, since the man had on occasion "to step back to avoid being overcome") has hypertension or retinitis been recorded, but blurred vision and burning pain in the chest and upper abdomen have been observed in the milder forms of acute poisoning, and after recovery from acute narcosis caused by petrol fumes. Two such cases, after heavy exposure to high octane petrol, have recently been described by J. S. Lawrence (*Journal*, 1945, **1**, 871). It is unlikely that the hypertension and retinitis are due to exposure to petrol, but it is possible that the patient's general condition and gastro-intestinal disturbance have been made worse by it. In view of the fact that permanent damage to the central nervous system has followed acute poisoning—in the form of petechial haemorrhages in the brain, meninges, and spinal cord—it might be as well to have a thorough examination of the nervous system. So far as is known, no special treatment is indicated.

Keeping Properties of Serum and Plasma

Q.—*What are the keeping properties of human citrated plasma and dried human serum? How long after the date of issue is it safe to use them? I have a stock of human plasma in sodium citrate solution dated Feb. 4, 1942, and a stock of dried human serum dated June 1, 1941.*

A.—Human citrated plasma in liquid form should not be stored unless frozen in the solid state. Plasma dated 1942 should certainly not be used. Dried preparations of either serum or plasma, so far as is known at present, keep indefinitely. There is no reason to suppose that dried serum dated 1941 would be unsatisfactory. Better preparations are now available, however, as technical procedures have been improved. Adequate supplies of a later date are plentiful.

Duration of Breast-feeding

Q.—*It is customary in our civilized world to advise breast-feeding a baby for nine months. As a baby goes on to mixed feeding and cuts teeth before that age, how long did Nature intend the baby to be breast-fed before civilization?*

A.—The answer is anybody's guess. But it is clear in the animal kingdom that a period of mixed feeding, in the double sense, does exist after the young begin to lap or chew solid food, and the mother's supply is neglected once enough food and drink can be obtained from other sources. It is said that many uncivilized tribes (in Africa) continue breast-feeding for a long period, and even the child of school age "takes a pull," so to speak, from time to time. Whether Nature intended this or not is another matter. It seems reasonable to assume that the arbitrary period of nine months has some custom behind it, and, in general, breast-feeding in the second year of life was probably never intended.

Treatment of Goitre

Q.—*What is the best treatment for a girl of 16 who has been suffering from a goitre, which enlarges just before each menstruation, for the past four years? Iodine has been tried, but it increased the size of the goitre. The basal metabolic rate cannot be done in this part of the world (Bengal). Would gonadal hormone treatment be of any use? Is there any danger in trying thiouracil before taking the basal metabolic rate? The girl is 5 ft. 2 in. (1.57 m.), weighs 9 st. (57.15 kg.), and her average pulse rate is 90. She is nervous, but otherwise healthy. Her finger-nails have not had to be pared for the last year, but are healthy in appearance, though her toenails have been unusually hard since childhood.*

A.—It is common for a simple goitre to begin at puberty and to show an exacerbation before each menstrual period. Before deciding upon treatment it is necessary to determine whether or not hyperthyroidism is present. Though a B.M.R. estimation is useful, the decision can be made on clinical grounds. Is the girl anxious, "highly strung," and excitable? Is her skin flushed, damp, and unduly warm? Does she feel the heat excessively? Has she lost weight? Is her resting pulse rate high? Is the pulse pressure high? Does she suffer from breathlessness on slight exertion or even when embarrassed? Are ocular signs, such as lid retraction, exophthalmos, or the classical signs of Graves's disease, present? Is there in any part of her body an obvious sympathetic predominance?

Some of these questions are already answered. She is not emaciated; in fact she is rather plump. But is her weight increasing or decreasing? The behaviour of the nails is not characteristic, but is, perhaps, more suggestive of thyroid underactivity than of overactivity. Her "average" pulse rate is rather fast, but as it is not a resting pulse rate the circumstances in which it was taken must be considered before it is interpreted. She may have been in the habit of hurrying to her consultations, or she may be frightened of doctors. Her nervous temperament may be due to causes other than hyperthyroidism, and the fast pulse rate may be a reflection of these rather than of thyroid disorder.

On the whole one would be inclined to guess that no hyperthyroidism is present. In this case thiouracil should not be given, for it is not a safe remedy. Though it is difficult to produce myxoedema in a patient with a functionally normal thyroid, it is not impossible. Moreover, a daily watch on the white corpuscles is essential if all risk of agranulocytosis is to be avoided. The treatment of choice is desiccated thyroid. Iodine is often effective, but has already failed in this case, probably because the thyroid is incapable of turning it into thyroxine. It is best to begin with a dose of gr. 1/4 (16 mg.) of thyroideum siccum every morning, and to increase the dose very gradually at fortnightly intervals, watching carefully for signs of overdosage, especially loss of weight and tachycardia. The final dose will be that which improves the goitre without producing such signs. No gonadal hormone will do any good at all.

Should further consideration, on the other hand, lead to a diagnosis of hyperthyroid goitre, thiouracil should certainly be used, in combination with physical and mental rest. With a dose of 0.4 to 0.6 g. daily there is little risk of an increase in the size of the goitre. When the condition of the patient suggests that improvement has set in, which is usually after two to four weeks, the dose is reduced to 0.2 g. daily, and after a few weeks to 0.1 g. A close watch on the white cells must be maintained throughout. In hyperthyroidism also gonadal hormones are useless. There is a theoretical reason for giving oestrogens, for they produce pituitary depression and might therefore be expected to reduce the output of thyrotrophic hormone. Unfortunately, they don't work.

Incompetent Lacrimal Duct

Q.—*About ten years ago a man had an antrostomy done. For the past five or six years he has suffered from the following trouble: If, during a cold, he blows his nose, mucus is driven back through the naso-lacrimal duct into the eye. When driving in a wind there is an inadequate drainage of tears, which flow on to the cheek. Why is this, and what is the treatment?*

A.—The lower end of the lacrimal duct must have been damaged at the operation in making an opening between the antrum and the nasal fossa, and the valvular mechanism has been rendered incompetent. The only radical treatment would be to make a direct communication between the lacrimal duct and the nose (rhinodacryo-cystostomy), as for stenosis of the lacrimal duct, but it would be impossible to guarantee that this would give complete relief.

Morphine Dosage

Q.—*In cases of severe colic—intestinal, renal, or biliary—and also in anginal and other severe neuralgic pains, what is the usual, and also the maximum, dose of morphine that can be given hypodermically with safety? How often, and at what intervals, can it be repeated?*

A.—The usual dose of morphine is 1/4 gr. (16 mg.). Several cases are known in which a dose of 1 gr. (65 mg.) has proved fatal to

adults. It is therefore rarely wise to inject more than 1/2 gr. (32 mg.) within a short interval of time. It may sometimes be two hours or longer before the morphine exerts its full effect. This is particularly likely to happen in patients who are shocked and collapsed. At first they do not absorb the morphine from the site of injection, and later they may display delayed morphine poisoning when the circulation rallies and the drug begins to act. Under normal circumstances most of the effects of 1/4 gr. will have passed off in six to eight hours, and it would therefore be safe to give 1/4 gr. (16 mg.) every eight hours. In disease the physician must decide whether persistent pain is due to resistance to morphine, in which case a larger dose would be indicated, or to failure of absorption, in which case further administration might be disastrous. It is therefore not possible to make a dogmatic statement, though as a general rule it is safe to give an initial dose of 1/2 gr. (32 mg.) morphine, and follow this by 1/4 gr. (16 mg.) in two or three hours in the severe type of pain which occurs in coronary thrombosis.

Acute Cardiac Failure

Q.—*What are the best emergency heart stimulants for acute cardiac failure in (a) chronic myocarditis the result of chronic valvular disease or coronary thrombosis; (b) acute myocarditis resulting from infections, such as pneumonia, typhoid, etc.? Is nikethamide a cardiac centre stimulant or, as some authorities seem to indicate, does it act only on the respiratory centre?*

A.—Only general indications can be given in answer to this question; the details of treatment will depend upon the appraisal of the exact clinical state. In acute failure due to chronic valvular disease auricular fibrillation is likely to be present, and if the patient is not already digitalized this should be undertaken by one of the rapid methods, such as tr. digitalis 1¼ dr. (5.25 c.cm.) at once, followed by 30 min. (1.8 c.cm.) six-hourly until the heart rate drops to the region of 100 per minute, after which 30 min. (1.8 c.cm.) thrice daily will probably suffice. In acute failure after coronary thrombosis digitalis is less likely to be beneficial. Nikethamide is commonly effective empirically, though its mode of action is not fully understood; 2 to 4 c.cm. should be given intramuscularly. Acute myocarditis in the course of pneumonia or typhoid must be far from common; the acute failure which may develop in these diseases is peripheral, and not due to inflammatory or other lesions in the heart muscle. Such peripheral failure is caused by toxaemia, often with dehydration, and the treatment will be directed to the relief of these states. Fluid infusions of 5% glucose in saline may therefore be necessary (intravenous or rectal) if the patient cannot take sufficient by the oral route. Nikethamide 2 c.cm. intramuscularly four-hourly, or strychnine gr. 1/32 (2 mg.), repeated if necessary, may help.

Dimethyl Phthalate as Mosquito Repellent

Q.—*Is dimethyl phthalate a reliable mosquito repellent, as a lotion or as an ointment?*

A.—Dimethyl phthalate is certainly a very effective repellent for mosquitoes and several other biting insects. It is a colourless oily liquid and is used undiluted. A few drops rubbed on the hands are wiped over the face or other areas of skin to be protected (avoiding eyelids and lips, etc., which are somewhat irritated by the liquid). This protection lasts for several hours until washed off by perspiration, etc. Another method of use is to apply the liquid to garments, through which some mosquitoes will bite. Applied in this way the repellent lasts for a week or so. Care must be observed, however, as the liquid dissolves certain types of artificial fabrics. It is harmless to silk, wool, and cotton (see our annotation, May 19, 1945, p. 705). We understand that supplies are available in small quantities in this country.

Chromidrosis

Q.—*A case of trichomycosis of the axillary hair with red coloration of the sweat has relapsed twice—once after shaving, and once after shaving and treating the area with 1 in 4,000 perchloride of mercury in spirit. Would you advise as to treatment and prognosis?*

A.—Chromidrosis is sometimes faked in hysterical subjects, or may be due to bacterial infection, such as *B. prodigiosus*. Treatment of this rare condition is often disappointing, and should take into consideration both the general health and the nervous system. It should not be forgotten that reinfection from clothing explains the tendency to recurrence in some instances.

Induction of Labour by Quinine

Q.—*Is there any danger to the foetus in drug induction of labour by quinine 10 gr. (0.65 g.), 5 gr. (0.32 g.), 5 gr. (0.32 g.), at two-hourly intervals? In two successive cases the newborn infant died in hyperpyrexia on the second day, but this may have no special significance.*

A.—Quinine given to the mother before or during labour permeates the placenta, enters the foetal circulation, and can be recovered from the urine of the child at birth. It can also be demonstrated in the amniotic fluid. It is therefore reasonable to suppose that it may have a toxic effect on the foetus. Several writers and many clinicians have noted that after the administration of quinine, in the sort of dosage mentioned above, the foetus is prone to pass meconium during labour, and it sometimes dies *in utero* for no apparent reason—other than exposure to quinine. As a result of extensive clinical and pharmacological investigation of 805 cases of quinine induction, W. J. Dilling, A. A. Gemmell, and Eileen S. Sadler (*J. Obstet. Gynaec. Brit. Emp.*, 1929, **36**, 352; 1930, **37**, 529) concluded that 6 foetal deaths (0.75%) were probably due to the quinine, and another 11 deaths (1.36%) were doubtfuily caused by it. However, they pointed out that an equal number of unexplained foetal deaths occur in any series of normal labours in which quinine is not administered. Therefore it has not yet been proved scientifically that quinine can cause foetal deaths. Nevertheless, as a result of clinical experience, most obstetricians are convinced that quinine does sometimes kill the child. Some believe that it can have other non-fatal ill effects, such as damage to the auditory nerve. The majority, therefore, rarely use quinine in an attempt to induce labour except when the foetus is already dead, and this type of induction is hardly ever practised now in many of the large maternity hospitals.

Even though it be accepted that large doses of quinine can kill or harm the foetus *in utero*, it remains doubtful whether it can cause neonatal death. The period of greatest danger—i.e., when the concentration in the maternal and foetal tissues is at its highest—is 6 to 12 hours after the first dose of quinine. Quinine sometimes persists in high concentration in the foetal tissues for a much longer time than in the maternal, and it has been identified in small amounts in foetal and placental tissues even 80 hours after the first dose. Although it is right to suspect that quinine may have been responsible for the deaths of these two babies, it is unjustifiable to come to any conclusion unless post-mortem examinations were carried out.

Sensitivity to Soap

Q.—*A patient has had attacks of dermatitis affecting the face, hands, and arms for about two years. So long as she does not use soap she is quite free from dermatitis. Will she ever be able to use soap with impunity, and is there any method of treatment that would help to make her skin insensitive to the effects of soap?*

A.—This patient's skin may be sensitive to one or more of the ingredients of soap. If it was toilet soap that caused the first attack it is unlikely that free alkali was the original irritant, which might have been either the perfume or a sodium salt of a fatty acid. If, however, the original attack was traced to the use of a household (including "soft soap") or medicated soap the possibilities are wider. A trial might be made of the patient's skin reaction to the use of a non-scented shaving soap, which might be tolerated. There is always the possibility if soft, or softened, water is used for washing that the soap lather is not being adequately rinsed off, and this may be the cause of the skin irritation. If this is the case a rinse of a weak solution of magnesium sulphate would assist in the removal of the soap from the skin.

INCOME TAX

Deductions for Use of a Car

Changes in the income-tax code are usually effected by means of the yearly Finance Acts, but last year a special Act—the Income Tax Act, 1945—was passed which will materially affect the deductions that can be claimed by those who own and use "plant and machinery" for trade or professional purposes. So far as the medical profession is concerned, "plant and machinery" is represented in the main by the car, or cars, used in the work of the practice or for carrying out the duties of a medical employment. By Section 18 of the Finance (No. 2) Act, 1945, the relevant provisions of the earlier Act are brought into force as from April 6, 1946. Accordingly the changes made will affect the calculation of profits, or of the net earnings of employment, only as regards periods beginning on or after that date. Practitioners assessed under Schedule D, on the usual basis of the profits of the previous year, will find that it does not make any difference to the tax payable for 1946–7; but it will affect individuals assessed under Schedule E on the current year's basis. Even in the latter case it seems unlikely that any definite and effective claims can be made on the new basis until the position is known for the whole of the year to April 5, 1947. The changes made may be summarized briefly.

(1) A new allowance called an "initial allowance," is instituted, the amount of which is 20% of the capital expenditure, and this is to be treated as if it were an expense of the year in which the cost was incurred. For instance, if a practitioner bought a car for professional use at a cost of £500 on Nov. 1, 1946, he would become entitled to a deduction from his profits or earnings of £100 (20% of £500) in reckoning his professional income for a period which includes that date. The "initial allowance" will be deducted, as the present "depreciation allowance" is now, in arriving at the written-down value on which the depreciation allowance is calculated for a subsequent year. The allowance will also be given in respect of a car bought on or after April 6, 1944, but will be treated as

if the transaction had taken place on or after April 6, 1946, and will therefore *not* ordinarily affect tax due under Schedule D for 1946–7, though ultimately it will affect tax due under Schedule E for that year. Any allowance for a car bought before then will be subject to an appropriate restriction if depreciation has already been allowed on the full cost before deducting the initial allowance.

(2) (*a*) The legal basis for calculation of the annual allowance is altered—though the new basis was in fact already in common use. The calculation is to be made not, as is legally the case at present, according to what car or cars may be owned and used during the year of assessment, but according to the position as at the date of the end of the year which forms the basis year for the assessment. Thus, if a practitioner has a car of which the written-down value on Dec. 31, 1945, was £250, it is on that amount that the depreciation allowance for 1946–7 must be calculated, even though he may have sold that car and bought another early in 1946. (*b*) The present method of calculating the annual allowance is unnecessarily complicated. In the first place a percentage, say 20%, is fixed which is regarded by the District Commissioners (or Special Commissioners) as reasonable, and to the amount so calculated an addition of one-fifth is made to arrive at the income-tax allowance. For example, if the written-down value of the car in question is £300, the depreciation allowance will be £60 (20% of £300) plus £12 (one-fifth of £60), making a total of £72. But in making the deduction from £300 for the purpose of the next year's calculation the £60 would be deducted but not the £12, and the figure carried forward would be £300 less £60—i.e., £240. In future one-fourth will be added to the percentage figure and the total allowance will be deducted in the "written-down" record. Thus, in the example above the allowance will be £60+£15=£75, and the capital figure to be carried forward will be £300−£75—i.e., £225.

(3) The new provisions establish what are called "balancing allowances" and "balancing charges." They have been devised to meet criticisms of the present arrangements arising from the fact that the taxpayer often finds himself left with an ultimate loss on some machinery or plant for which he receives no income-tax allowance. If, for example, a car is replaced by a somewhat similar one after some years of service, the present "obsolescence allowance" gives equitable relief. But that allowance has two conditions, or rather a condition and a restriction: the car for which the obsolescence allowance is claimed must be replaced, and the amount of the allowance must not exceed the cost of the new car. A practitioner retiring from professional work is debarred from the allowance because he does not replace the car for professional purposes; and where the cost of the new car is much below that of the one replaced—if the latter had been bought at a scarcity price or the former were bought second-hand—only partial relief is forthcoming in respect of the loss on the old car. Under the new system a balancing allowance will be given whether the car is replaced or not, and will not be restricted by reference to the cost of the new car, if there is one. On the other hand, if the car is sold for a sum which when added to the amounts allowed in respect of it by way of "initial allowance" and depreciation exceeds its cost, the Revenue has the right to bring the "profit" into taxation as a "balancing charge." It seems not unlikely that there will prove to be a good many cases of this kind, where cars bought at something like pre-war prices are sold after April, 1944, but that is a temporary price which some taxpayers will have to pay for a general and permanent gain.

LETTERS, NOTES, ETC.

Nocturnal Cramp

Dr. E. LUDOWICI (Sydney, N.S.W.) writes: With reference to the question and answer on nocturnal cramp (Aug. 18, p. 240), this condition can be very troublesome. I have found that an increased amount of salt taken in the diet will avert the attacks: for the attack a quarter of a teaspoonful in water followed by a little sherry and an A.P.C. tablet is effective; extension of the leg and foot also helps.

Operations for Varicose Veins

Dr. R. K. BROOKS (Chipping Sodbury) writes: As a victim of this complaint and wondering what will eventually be my own fate, I have had ample opportunity to study the subject during the war years. It was my privilege to be the M.O. to soldiers, about a company strength, throughout the war. During this time there were four changes of regiments and frequent changes of men, and so my observations were not restricted to one group of men whose category was B or C. A foot inspection or the customary F.F.I. would reveal an interesting assortment of end-results of attempts to treat varicose veins. In my opinion—and I have no hesitation in saying it—these were all *failures*. Whether it was the injection method, or ligation, or complete removal of the vein, all methods were unsatisfactory, and I was convinced that there was no satisfactory method of surgically treating varicose veins. The best one can do is to support the engorged vein with something like elastic stockings. A varicose vein is, after all, the normal penalty (physiological) for a two-legged animal who is getting old and is obliged to spend an excessive number of hours on his feet. If this is so, it stands to reason that if you ligate the one vein, or produce a sclerosis, or even remove the vein, you are only hastening the varicosity of other veins in the neighbourhood. Is one better off in the end? Now, no doubt this reasoning will evoke the wrath of surgeons, but can they offer a guarantee or a better reasoning for not withholding surgical interference?

Bite of Culex molestus

J. T. S. writes: Should the question put to you (Nov. 10, p. 675) resolve itself in non-technical language to "Can you stop a mosquito bite from swelling and itching?" I may be of assistance. I have lived in several parts of the world infested by mosquitoes, and have found the following simple treatment effective on myself and a large number of other people. As soon as possible after bites are noticed, scratch them half a dozen times with a fine, sterilized needle (I have merely held it in a match flame) and apply tincture of iodine. The itching stops instantly with the counter-irritation of the iodine, and the swelling and general effect of the bite disappear in about 12 hours. I cannot say whether this would help your correspondent's patient, but I have never known it fail. Obviously, the quicker the remedy is applied the quicker the cure.

Applying for a Hospital Appointment

Mr. A. WALLIS KENDALL, F.R.C.S., writes: Surely it is possible to avoid asking candidates for hospital appointments for such large numbers of copies of their applications; as an example, in an advertisement this week sixty copies are required. A copy of each application could be displayed in the medical staff room or could be circulated. By either or both methods sufficient opportunity would be given to all members of the honorary staff to gain the necessary information about a candidate before the usual personal interview. Again, the natural desire to please the electing committee leads to a competition in the elegance of production of the applications, with a great deal of expense for printing to candidates who as a class are not usually overburdened with riches. If typewritten copies were asked for they would be quite adequate. Lavish demands for copies are such a certain sign of a return to peacetime conditions that it may seem a little ungracious not to welcome them. I have in mind, however, the words of the poet:

> "War lays a burden on the reeling State,
> And peace does nothing to relieve the weight."

British Medical Literature: Europe's Need

Dr. LADISLAV FISH writes from 5, Gurney Drive, London, N.2: U.N.R.R.A. supplies the liberated countries with drugs, instruments, hospital equipment, but nobody supplies them with books, medical literature, etc. In my experience this need is equally as important. There is no planning with regard to this, although the need is urgent—for example, it is vital for Czechoslovak medical science and practice to be in close contact with medicine of a nation whose language opens the door to the world. It greatly concerns this country, and it is in her interest that the vacuum created by the disappearance of German medical literature should be filled with British.

My experience during my work in Czechoslovakia (where I went with the !st Czechoslovak Medical Mission from this country) includes the following. German medicine had a very great influence in Czechoslovakia before the war, and this influence changed during the occupation into complete domination. After the German defeat German periodicals and other literature disappeared, but their influence remained. The sources of information, references, etc., in published papers are mainly if not entirely German. Students, in spite of their disgust, have to study from German books because there are no others. The few older Czech medical textbooks are copied and cyclostyled by the students, who often find only a single remaining copy in the library. It is not always easy to introduce the newer methods and views in medical science and practice. The strength of German influence and its persistence become apparent in a reluctance to accept anything new or different even when the old is doubtless inferior. To change this it is necessary to supply the profession with plenty of reading material which would give enough information regarding the advances and experiences of other nations. This is a great chance for British medicine to widen her publicity. It would be too costly and difficult now to set up a central organization for the purpose of supplying the universities, libraries, etc., but I would like to suggest starting in a modest way—e.g., that the societies of the various specialties should supply reference books, periodicals, etc., both new and old, to the university department of the same specialty. As an E.N.T. surgeon I would like to appeal to British oto-laryngologists to collect a small library (not necessarily composed of new books, but mainly recent editions from the last 10 years) for the E.N.T. Department of the Charles University of Prague. It needs them urgently, and the teaching staff, assistants, and students would appreciate them greatly. Anybody who will give a book for this purpose can be certain that it will be an excellent contribution not only to Czech medicine but also to the mutual understanding of nations.